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A STUDY OF THE CREDIT GRANTED TO HIGH-SCHOOL GRADUATES

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This article presents the results of an analysis of the credits granted to high-school graduates, not on the basis of published announcements, catalogues, and programs of study of the schools from which they were graduated, but on the basis of credit actually accepted toward graduation, i.e., it is a study of the granting of credit as it works out in practice.

The data utilized for the study were supplied by the heads of eleven estimable secondary schools[1] in and near Chicago and include, for the most part, the kinds and amounts of credit granted by the schools to members of the classes graduated in June, 1915. As it is not necessary, in order to have the facts represent the situation fairly, to include in the study the data concerning all the members of the graduating classes, each principal was asked to

[1] For the sake of convenience these schools will be designated by number. The numbers and the corresponding names of the institutions are as follows:

School 1, Blue Island Township High School; School 2, East Aurora High School; School 3, Elgin High School; School 4, Hinsdale Township High School; School 5, J. Sterling Morton High School; School 6, Lewis Institute; School 7, New Trier Township High School; School 8, Oak Park and River Forest Township High School; School 9, Proviso Township High School; School 10, Thornton Township High School; School 11, University High School.

supply only the data for the first 32 in the list of graduates when alphabetically arranged. The data finally incorporated concern a total of 312 graduates distributed as follows: 32 graduates of each institution except of Schools 1, 4, 5, and 8, for which the numbers of graduates concerned are respectively the first 24, 14, 20, and 30 when alphabetically arranged. For School 6 the facts used concern the first 32 boys, alphabetically arranged.

THE AMOUNTS OF CREDIT WITH WHICH STUDENTS ARE GRADUATED

One item of interest and significance is the total amount of credit with which students who complete the work in four years or less are graduated. The facts concerning this are presented in Table I, which is so arranged that the vertical column at the left

TABLE I

TOTAL UNITS OF CREDIT GRANTED TO STUDENTS GRADUATED IN FOUR YEARS OR LESS

Number of Units	School											Total	Percentage
	1	2	3	4	5	6	7	8	9	10	11		
14.0–14.4	....	....	....	....	....	8	....	....	....	....	....	8	3.1
14.5–14.9	....	....	....	....	2	....	....	....	....	....	....	2	0.8
15.0–15.4	1	....	....	....	....	15	....	....	....	....	....	16	6.2
15.5–15.9	3	....	....	....	....	....	....	....	....	....	....	3	1.2
16.0–16.4	5	9	5	5	2	5	3	16	16	7	5	78	30.4
16.5–16.9	1	7	4	7	1	....	7	6	10	16	5	64	25.0
17.0–17.4	3	3	4	1	....	3	9	1	....	4	5	33	12.3
17.5–17.9	1	....	4	....	3	....	2	3	2	3	3	21	8.2
18.0–18.4	7	....	1	....	....	....	....	....	1	1	2	12	4.7
18.5–18.9	3	....	....	....	....	....	1	....	....	1	2	7	2.7
19.0–19.4	....	....	1	....	1	....	1	....	....	....	3	6	2.3
19.5–19.9	....	....	....	....	2	....	....	....	....	....	....	2	0.8
20.0–20.4	....	....	....	....	....	....	....	....	....	....	1	1	0.4
20.5–20.9	....	....	....	....	1	....	....	....	....	....	1	2	0.8
21.0–21.4	....	....	....	....	....	1	....	....	....	....	....	1	0.4
Total	24	19	19	13	12	32	23	26	29	32	27	256	99.3

indicates the number of units of credit received by the students, while the horizontal column at the top contains the numbers by which we are designating the schools. The table contains the data for those 256 (of the total of 312) students who were graduated in four years or less. It needs to be said that the data from

Schools 1 and 6 were supplied in such a form as to make it uncertain whether or not all the students concerned had been graduated in four years or less, but the proportion of these cannot be so large as to invalidate more than to a slight extent, if at all, the general result.

Scrutiny of this table offers a number of significant findings. A small proportion of the students, 11.3 per cent, were graduated with less than 16 units of credit, and most of these were graduated from a single institution. In other words, these schools very generally follow the practice of conforming to the usual minimum requirement of 16 units. More than half of the students complete the work with 16.0 to 16.9 units of credit. Of these graduates, 149, or 58.2 per cent, were granted 16.5 units of credit or more. If we add to these the 34 students in the 16.0 to 16.4 category who were granted more than 16.0 units, we have a total of 183, or 71.5 per cent, who received more than 16.0 units, a few of these receiving even more than 20 units. This represents a marked departure in practice from the principle set forth in the statement appended in February, 1913, to the "Definition of the Unit" by the National Conference Committee on the Standards of Colleges and Secondary Schools: "A four years' secondary-school curriculum should be regarded as representing not more than 16 units of work." In these schools, which, the writer believes, may be taken to typify the practice in the best secondary schools of the Middle West, the secondary-school curriculum *does* for most of the graduates represent more than 16 units of work. This tendency indicates that either the definition or the practice should be modified. If it can be shown that the present practice is the result of relatively uncontrollable forces, we shall be urged to the opinion that the National Conference Committee did not say the right nor the last word in the matter of unit definitions. If this tendency is a consequence of the recent enrichment of high-school programs of study, and a resulting desire of the students to come into contact with a wider range of subjects of study as well as of the principals' readiness to conform to this desire, it may point to an extension of the period of secondary education along the line of present tendencies toward reorganization of the secondary school.

THE AMOUNT OF CREDIT GRANTED TO STUDENTS DURING EACH HIGH-SCHOOL YEAR

Another important administrative matter is the amount of credit that may be granted the student during any single school year. The facts concerning this aspect of the study are presented in Tables II–V. In these tables we have again used data concerning only students who were graduated in four years or less. The material from Schools 1 and 6 was compiled in such a manner as to preclude its use at this point. The variation from table to table in the total number of students included in this aspect of the study (193, 192, 196, and 194 respectively) is due to the transfer of a few students from some other school to some school within this group. The loss of 2 students in the fourth year is accounted for by their graduation at the end of the third year.

TABLE II

UNITS OF CREDIT BY YEARS GRANTED TO STUDENTS GRADUATED IN FOUR YEARS OR LESS

FIRST YEAR

SCHOOL*	NUMBER OF STUDENTS RECEIVING												TOTAL
	Less than 2.0	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	5.5 to 5.9	6.0 to 6.4	6.5 to 6.9	7.0 to 7.4	
2	....	....	....	....	1	11	6	1	....	....	....	....	19
3	....	....	....	....	1	11	5	2	....	....	....	....	19
4	....	....	....	2	....	8	1	2	....	....	....	....	13
5	1	....	....	1	3	2	4	....	....	....	....	1	12
7	1	....	....	4	3	10	2	3	....	....	....	....	23
8	....	....	....	....	1	22	3	....	....	....	....	....	26
9	....	....	....	....	4	12	4	7	....	....	....	....	27
10	....	2	1	5	4	15	4	1	....	....	....	....	32
11	....	....	....	....	1	3	3	7	3	2	3	....	22
Total	2	2	1	12	18	94	32	23	3	2	3	1	193
Percentage	1.0	1.0	0.5	6.2	9.3	48.9	16.6	12.0	1.6	1.0	1.6	0.5	100.2

* Data not available for Schools 1 and 6.

From a study of Table II it will be seen that a total of 64, or 33.3 per cent, of the graduates received 4.5 units of credit or more for the work of the first year. The same computation for Tables III, IV, and V reveals that 74, or 38.5 per cent, 73, or 37.2 per cent, and 62, or 31.9 per cent of the students received 4.5 units

TABLE III

Units of Credit by Years Granted to Students Graduated in Four Years or Less

SECOND YEAR

School*	Number of Students Receiving								Total
	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	5.5 to 5.9	
2	.....	.....	1	2	9	6	1	.....	19
3	.....	.....	1	1	6	8	3	.....	19
4	.....	.....	1	.....	7	2	3	.....	13
5	.....	1	2	1	1	5	2	.....	12
7	.....	.....	3	3	9	8	.....	.....	23
8	1	.....	1	.....	22	2	.....	.....	26
9	.....	.....	.....	1	16	8	1	1	27
10	.....	1	1	3	15	5	5	2	32
11	.....	1	.....	.....	8	3	8	1	21
Total	1	3	10	11	93	47	23	4	192
Percentage	0.5	1.6	5.2	5.7	48.4	24.2	12.0	2.1	99.9

* Data not available for Schools 1 and 6.

TABLE IV

Units of Credit by Years Granted to Students Graduated in Four Years or Less

THIRD YEAR

School*	Number of Students Receiving										Total
	Less than 2.0	2.5 to 2,9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	5.5 to 5.9	6.0 to 6.4	6.5 to 6.9	
2	.....	.....	1	1	14	2	1	.....	.....	.....	19
3	.....	.....	2	2	7	4	3	1	.....	.....	19
4	.....	.....	1	1	8	.....	3	.....	.....	.....	13
5	.....	.....	1	3	2	2	2	1	1	.....	12
7	.....	.....	2	4	6	9	1	.....	1	.....	23
8	.....	.....	1	3	15	4	2	1	.....	.....	26
9	1	1	4	13	4	3	.....	.....	1	1	28
10	.....	.....	.....	2	14	11	4	.....	1	.....	32
11	.....	1	1	2	6	11	3	.....	.....	.....	24
Total	1	2	13	31	76	46	19	3	4	1	196
Percentage	0.5	1.0	6.6	15.8	38.8	23.5	9.7	1.5	2.0	0.5	99.9

* Data not available for Schools 1 and 6.

of credit or more for the work of the second, third, and fourth years, respectively. It is noteworthy that such a large proportion were granted so much more than the traditional 4 units during the Freshman year. Moreover, in the light of the practice in many schools of permitting students who are short on credit on arriving

TABLE V

UNITS OF CREDIT BY YEARS GRANTED TO STUDENTS GRADUATED IN FOUR YEARS

FOURTH YEAR

SCHOOL*	NUMBER OF STUDENTS RECEIVING									TOTAL
	Less than 2.0	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4	4.5 to 4.9	5.0 to 5.4	5.5 to 5.9	
2	.....	.....	.....	4	5	7	2	1	.....	19
3	.....	2	1	1	4	7	2	2	.....	19
4	.....	.....	.....	5	1	3	1	3	.....	13
5	3	.....	.....	.....	.....	2	3	3	1	12
7	.....	.....	.....	.....	4	7	5	4	3	23
8	.....	.....	.....	1	.....	13	6	5	1	26
9	.....	.....	2	1	15	9	1	.....	.....	28
10	.....	.....	.....	2	8	11	6	3	2	32
11	.....	.....	.....	1	3	10	6	2	.....	22
Total...	3	2	3	15	40	69	32	23	7	194
Percentage	1.5	1.0	1.5	7.7	20.6	35.5	16.5	11.8	3.6	99.7

* Data not available for Schools 1 and 6.

at the fourth year of their high-school work to carry 5, 6, and even 7 full-year subjects so as to make it possible for them to receive the requisite credit for graduation by the end of the fourth year, the fact that the percentage of students being granted 4.5 units or more during the fourth year is even somewhat less than for any other year speaks for a wholesome situation in this regard in the schools included in this study.

THE CONTRIBUTION OF CERTAIN SPECIAL SUBJECTS TO THE EXCESS CREDIT

A question that naturally arises in a study of this kind is: To what extent is the credit in excess of 16 units attributable to credit in special subjects which are taken by the student *in addition* to the traditional four units per year in the traditional subjects,

and taken in addition because these special subjects are not considered by the school as on a par with the traditional subjects? In other words, does the practice in granting credit indicate that the schools are in effect saying to the student, "You may have this work in the special subjects, but you must offer for graduation in addition 16 units of work in the traditional subjects"? Table VI presents the results of an effort to obtain an answer to this question in the material used in this study. That supplied by Schools 1, 5, and 6 was not utilizable for this purpose.

It is to be noted that 154 students of the total of 188 who were graduated from the 8 schools supplying usable data were graduated with an excess over 16 units, and that the total excess is 153.025 units, or almost a unit per graduate. Of this total, 127.05 units are seen to be consumed by such special subjects as music, physical training, penmanship, spelling, and public speaking. But, as it was not considered that this alone is an adequate basis upon which to decide whether or not most of the excess credit is attributable to the credit granted for the special subjects, inasmuch as students have varying amounts of it, sometimes equal in amount to the excess, sometimes more, and sometimes less, the problem was attacked from another angle. The results of this second method of attack are shown in the last 3 vertical columns in Table VI, which present the status of the students' credit after subtracting credit in the special subjects named. These columns indicate that 29 graduates have just 16 units of credit remaining after subtracting the credit for these special subjects, 70 still have an excess after such subtraction, while, for the 55 remaining graduates, subtracting the credit for these special subjects dips down into the 16 units. When subtracting the credit for special subjects dips down into the 16 units, we may say with fair assurance that the credit in these subjects is being placed on a par with that in the traditional subjects, and, since it does so with more than a third of the students here given consideration, we have evidence of a marked tendency so to recognize it. We are not warranted, on the other hand, in concluding that, because there are still 16 or more units of credit remaining after subtracting the credit for the special subjects, the heads of

TABLE VI

A Study of the Contribution of Certain Special Subjects to the Excess Credit

School*	Number with Excess over 16 Units	Total Excess over 16 Units	Consumed by Special Subjects	Names and Amounts of Credit in Special Subjects	Status of Students' Credit after Subtracting Credit for Special Subjects		
					Number with 16.0 Units	Number with Excess	Number with Less than 16.0 Units
2.....	12	9.5	13.0	Music 9.5 Penmanship 3.25 Public speaking 0.25	.....	5	7
3.....	14	18.375	24.5	Music 9.5 Physical training 8.5 Public speaking 6.5	.....	4	10
4.....	13	6.5	5.4	Music 2.175 Physical training 3.225	10	3	.....
7.....	23	26.0	23.2	Music 8.9 Physical training 12.4 Music and physical training 1.9	3	10	10
8.....	10	8.5	1.5	Music 1.5	.....	9	1
9.....	26	15.7	9.5	Music 3.0 Penmanship 4.8 Spelling 1.3 Physical training 0.3 Oral expression 0.1	3	14	9
10.....	32	27.0	23.6	Music (chorus) 5.0 Physical training 9.0 Penmanship 5.9 Spelling 2.9 Penmanship and spelling 0.8	8	13	11
11.....	24	41.45	26.35	Physical training and music 22.0 Public speaking 3.55 Physical training 0.4 Chorus and music 0.4	5	12	7
Total...	154	153.025	127.05	.....	29	70	55

* Data not available for Schools 1, 5, and 6.

TABLE VII

Sequences as Shown by the Credits Granted by the High Schools to 312 Graduates

School	Total Number of Students	English			Without Foreign Language	Foreign Language								Without Mathematics	Mathematics					Without Science	Science					Without History	History				
		2.1 to 3.0	3.1 to 4.0	4.1+		0.1 to 1.0	1.1 to 2.0	2.1 to 3.0	3.1 to 4.0	4.1 to 5.0	5.1 to 6.0	6.1 to 7.0	7.1+		0.1 to 1.0	1.1 to 2.0	2.1 to 3.0	3.1 to 4.0	4.1+		0.1 to 1.0	1.1 to 2.0	2.1 to 3.0	3.1 to 4.0	4.1+		0.1 to 1.0	1.1 to 2.0	2.1 to 3.0	3.1 to 4.0	4.1+
1	24	.....	24	.....	2	4	2	2	4	3	3	4	.....	0	5	15	4	.....	.....	0	1	9	13	1	.....	4	6	10	3	1	.....
2	32	13	18	1	5	2	5	5	5	5	2	3	.....	0	4	9	11	5	3	3	7	8	12	2	.....	0	8	7	11	6	.....
3	32	13	18	1	11	6	.....	6	5	3	.....	1	.....	0	.....	22	8	2	.....	0	8	13	6	5	.....	0	2	14	12	3	1
4	14	2	12	.....	1	.....	3	3	3	1	2	1	.....	0	1	8	5	.....	.....	1	2	7	3	1	.....	0	3	4	6	1	.....
5	20	6	9	5	3	2	4	4	3	2	1	.....	1	0	10	3	5	1	1	0	6	6	3	3	2	4	10	3	3	.....	.....
6	32	28	4	.....	4	3	7	7	3	3	2	2	1	0	.....	7	18	7	.....	1	2	12	13	4	.....	5	17	7	3	.....	.....
7	32	7	23	2	0	3	9	7	6	5	2	.....	.....	0	.....	10	18	4	.....	0	.....	14	8	9	1	0	8	10	9	4	1
8	30	.....	29	1	0	1	5	5	3	6	7	2	1	0	.....	7	20	3	.....	0	16	8	3	3	.....	0	.....	24	5	1	.....
9	32	7	25	.....	1	.....	9	8	5	6	2	1	.....	0	5	12	14	1	.....	0	8	12	10	2	.....	0	1	8	10	9	4
10	32	10	22	.....	4	5	5	12	6	.....	.....	.....	.....	0	2	10	16	4	.....	0	6	9	12	5	.....	1	7	10	12	2	.....
11	32	30	2	.....	0	.....	.....	4	6	4	8	6	4	0	4	13	11	3	1	2	16	8	6	.....	.....	0	12	6	9	5	.....
Total	312	116	186	10	31	26	49	63	49	38	29	20	7	0	31	116	130	30	5	7	72	106	89	35	3	14	74	103	83	32	6
Percentage	.....	37.2	59.6	3.2	9.9	8.3	15.7	20.2	15.7	12.2	9.3	6.4	2.2	.....	9.9	37.2	41.7	9.6	1.6	2.2	23.1	34.0	28.5	11.2	1.0	4.5	23.7	33.0	26.6	10.3	2.0

the schools are refusing to place those subjects on a par with the more traditional ones.

ANALYSIS OF THE CREDIT BY SUBJECTS

Table VII presents the results of an analysis by subjects of the credit granted to all the 312 graduates concerned in this study, irrespective of the number of years the student was in high school before completing the work. Only credit for work in the five more traditional fields has been tabulated. The table is to be read in the following manner: Of the 24 graduates of School 1 incorporated in this study all were granted from 3.1 to 4.0 units of credit in English, 2 were graduated without foreign language, 4 with 0.1 to 1.0 unit, etc. The totals and corresponding percentage distributions for all the 312 graduates will be found in the two lowest horizontal columns of the table.

A few minor limitations on obvious interpretations need to be set down before proceeding to the more outstanding lessons of the table. The upper limit of each category of distribution may be accepted as the prevailing amount of credit granted under that category, e.g., 2.1 to 3.0 units of credit in English usually means 3 units of credit in English. The more important exceptions are given here. School 9 does not grant full units of credit in English for each year, granting in many instances for the 4 years of English some such respective amounts as these: 0.9, 0.9, 0.8, 0.8. School 3 has granted 3.5 units in English in a few cases. About half of the students in the 2.1 to 3.0 category in mathematics have credit for 2.5 units. Ten of the graduates of School 7 who have been tabulated under the category 1.1 to 2.0 in science have actually received 1.2 units in that field, 7 credited with 2.1 to 3.0 have received 2.2, and 4 credited with 3.1 to 4.0 have received 3.2. This is due to what seems to be a requirement in this school of 0.2 unit in physiology in conformity to statutory requirement in Illinois. A somewhat similar situation appears for School 8, where 15 graduates are credited with 0.1 to 1.0 unit in science when they have received 0.5 unit, while 6 and 2 others, respectively, are credited with 1.1 to 2.0 and 2.1 to 3.0 units when they have received 1.5 and 2.5 units in this field. It needs to be noted further that credit for business English has not been included in the

credits reported for English, unless it has been unwittingly so included in the table in working over the data furnished by Schools 1, 5, and 6, which have specified no business English in the data supplied; that mathematics includes only elementary and advanced algebra, plane and solid geometry, and trigonometry; that history includes all the social studies such as civics, economics, and commercial law, as well as history proper; and that science does not here include domestic science, commercial geography, or agriculture. It is, of course, not to be interpreted that the amounts of credit in foreign language recorded for any student are necessarily in a single language. There are even a few graduates who were granted credit for one year each in 3 different languages. There are a few students in School 11 who have been granted as much as 9 or 10 units of credit in 2 or more of the languages, but who have been tabulated as having 7+ units.

From this table we see that none of these schools graduates a student with less than 2.1 to 3.0—almost without exception 3—units of English, that a somewhat larger proportion of the students are graduated with 4 than with 3 units, and that a small percentage are graduated with even more.

That schools are breaking with tradition in the requirement of foreign language is to be seen in the fact that practically 10 per cent of the students are graduated without any credit in this field. The small percentage being graduated with 1 unit may reflect a practice in some of these schools of denying credit for a single year of foreign language. There is no marked modal amount of foreign language with which students are graduated, as almost two-thirds of the students are distributed in approximately equal proportions in the 2-, 3-, 4-, and 5-unit categories. From the 2.1 to 3.0-unit category the proportion drops off until we find that but 2.2 per cent are graduated with more than 7 units. The data for School 11 are remarkable in that no student was graduated with less than 3 units of foreign language and in that as many as 4 of this group of 32 students offered more than 7 units.

No student of the 312 has been graduated without some traditional mathematics, although about 10 per cent have had but a single year. The modal offering is 2 to 3 years, probably, in part at least, out of deference to current college-entrance requirements.

Only 2.2 per cent have completed their work without science, although, especially in the light of the limitation upon interpretation stated above, rather large proportions are graduated with small quantities of this work. Only about one-ninth of the students are credited with as much as 3.1 to 4.0 units of science.

History and allied subjects do not find a place in the curricula of 4.5 per cent of these graduates, an approximate fourth complete the high school with a single year, one-third with 2 years, one-fourth with 3 years, while but an approximate tenth have 3.1 to 4.0 years.

We may now draw a few conclusions of a more general nature from what appears in Table VII. It is a fact of significance that a considerable proportion of the students are permitted to regard their high-school curricula as completed when they have had little or no foreign language or practically none of the traditional mathematics. It suggests an open disregard of the older requirements for college entrance, as well as—which is a matter of greater import—a belief that a high-school curriculum with little or none of these subjects may be worth while.

The fact that large proportions of students are graduated with as little as one or two years of work in each of the subjects except English should point a moral to the specialist in each of these fields. It should teach the specialist to cease to cozen himself with the delusion that all high-school students will have a full sequence of three or four years in his field and that he can plan his work on the basis of this delusion. Even though we may be convinced of the value of consecutive work through several years in two or more subjects, we should not be oblivious to the fact that many high-school students do not have sequences—may have but a single year—in our particular field, finding it more advisable to do more extended work in other fields. For example, teachers of foreign language may need to open their eyes to the need of organizing and presenting single-year courses that are worth while in themselves without regard to any work that may follow. Similarly, teachers of science who are giving thought to their perplexing and important problem of how to develop a coherent sequence in their particular province of learning must not forget that they must continue to offer year courses that often will not be followed nor always be preceded by other year courses in science.

FUNDAMENTAL CONSIDERATIONS IN THE REORGANIZATION OF HIGH-SCHOOL SCIENCE

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There has never been a time in the history of secondary education when consideration of the fundamental principles underlying high-school science courses was as necessary as at the present hour; nor has there ever been a time when those principles were receiving the attention they are now receiving. The Spencerian conception of science as a foundation for all general education has not been realized. The popular interest in science which characterized the epoch of Darwin, Huxley, and Agassiz, of Faraday, Lyell, and Tyndall has largely waned in recent years. The last decade of the nineteenth century and the first decade of the twentieth century showed a marked decrease in the *percentage* of high-school students enrolled in the science classes of the secondary schools of the United States. Meanwhile, applied science advanced by leaps and bounds. Its controlling influence in the daily life activities of all classes increased at a tremendous pace. Within a life's span it has completely revolutionized all systems of transportation and communication; it has all but annihilated time and space; it has molded all civilized peoples into a single, interdependent community; it has transformed the primitive home into the modern home with its multitude of labor-saving and life-conserving conveniences; it has, in a large measure, severed the fetters of hard manual labor from the farmer, the mechanic, and even from the common laborer; it has enabled man to subdue and harness the vast, wild forces of nature to an extent undreamed of by the Jules Vernes of a half-century ago; it has multiplied the productive resources of human effort many fold; in short, it has doubled and redoubled the available comforts and pleasures of life and, at the same time, it has cut in half the necessary hours of human toil.

In such an age, when applied science rules the activities of men, when all human activity is so dominated and determined by applied science, why should not popular interest in science be ever-increasing? Why this decline in the percentage of high-school students who are pursuing the science courses offered in our high schools? Why the present unrest and agitation by science teachers and students of education concerning science instruction in our high schools? Why the persistent demand, from every quarter that high-school science be reorganized?

If science is ever to become the basic foundation of a general education for the common people, as was held two or three generations ago to be inevitable, not only by Herbert Spencer, but also by many of the leading educators of that day, science in our high schools must be reorganized. It must be reorganized with a conscious recognition of the fact that we are now living in the twentieth century, that we have passed the period when initial interest in science rests with a mere appreciation of the great, general abstract truths of science, if, indeed, young people of high-school age ever were interested in that phase of science. It is absolutely clear that at the present time our classroom instruction must reveal to the high-school student something of the story of the discovery of the great truths of science, but especially it must make clear to him the monumental effects of applied science upon modern life.

The science courses offered some thirty to forty years ago, when the public high school was in its infancy, were interesting and popular. But the courses then offered were largely of the nature of popular science; they were spiced through and through with details and illustrations of interest to the common people. Some of us are inclined to smile at those early courses today because they were so brief, because they dealt so largely with the spectacular side of science, and possibly even because they were evidently so framed up as to make a strong appeal to the interest of the young people. On the other hand, students of education are coming to recognize that the greatest value of those early courses lay in the appeal they made to the interest of the student.

Gradually elementary courses in science became more and more barren of detail and almost devoid of those touches of human

interest which made the earlier, popular presentation fascinating. Gradually, but surely, high-school science became a condensed epitome of the college course; the dry bones of the college course were presented but the flesh and blood were gone, and with the flesh and blood went also the interest of the student.

The present organization of science materials into the special sciences for purposes of instruction, in the early years of the high school, at least, is fundamentally unpedagogical and is largely responsible for the decline of interest in science in our secondary schools. The usual course in any special science either presumes that the student is interested in the abstract, fundamental truths of science or else it neglects the element of interest as a factor in the educational process. In either case it is unpedagogical and a fatal mistake, for initial interest in science rests chiefly, if not solely, in those phases of applied science which have to do with the control of our environment, and without interest little educational progress is possible.

The units of applied science are fundamentally different from the units of pure science. The units of applied science are the natural, Creator-made, units; the units of pure science are artificial, man-made, units. Because the mature scientist appreciates and sees a certain significance in the organization of science materials into man-made units, it does not follow that the boy or girl just beginning the study of science is likewise interested in such a so-called "logical" study of abstract, fundamental principles. The adolescent is distinctively an embodiment of alert, intense impulses. But with all his keenness and alertness his interest is secured and maintained only when the subject under consideration has significance, when it has direct bearing upon his welfare or the welfare of those about him. Critical analysis, long continued, followed by synthesis, and finally terminated, possibly, by a brief mention of application, *which is the method of a special science*, may satisfy the mature scientist, but such a procedure kills all interest in the beginning high-school student. The beginner in the study of science is interested only when the order of procedure is reversed. He wants, first of all, to see the *go* of things; he must first of all be shown the

worth-whileness of the task set before him. This can be accomplished only by showing him the significance of science in its applied setting. Out of a study of applied science the essential laws and principles may be developed.

As a concrete example of the foregoing let us consider the procedure of special science organization of plant life—botany. Where is the wide-awake, fourteen-year-old farmer boy who is interested in a two- or three-weeks analytical study of roots, followed by a similar study of stems, then of leaves, and finally fruits, even though some mention of application may be made in the closing chapter? Such a boy, however, with red blood in his veins, is intensely interested in the study of corn, or of wheat, or of potatoes, the conditions under which they germinate or sprout, and under which they grow and mature. He is interested in the climatic conditions and the soil conditions best suited to their growth and maturity, and in the insect pests to which they are subject. When science teachers come to recognize that the source of interest for the high-school boy lies in the applied phases of science and not in the abstract phases, or "pure science" phases, they will cease to wonder at the fact that agriculture is popular and on the incline as a high-school subject while botany, as generally taught, is unpopular and on the decline.

The mastery (?) of some two or three hundred abstract principles and laws, together with the solving of several hundred mathematical problems and the performing of fifty or more generally nonsignificant laboratory exercises is usually recognized as the sum total of an adequate high-school course in physics. Such a course has been the bane of life and the Waterloo of thousands, if not millions, of perfectly normal high-school girls. Their frantic efforts to surmount this obstacle to their goal—graduation—is pathetic. But who will say that the average girl cannot be interested in, and led to appreciate and to understand, the essential principles of that most difficult portion of physics, mechanics, when we see her sitting confidently at the steering wheel of the family car, safely guiding it through the crowded thoroughfare of the city? The fact is that she is easily capable of intense interest in gears, in revolutions per

minute, and in differentials, as well as in proper mixtures, induction coils, magnetos, spark plugs, and storage batteries, provided these be taught, not as abstractions, but as vital parts of the car she drives.

But the question arises, Just how is this reorganization of science upon the principle of developing the essential laws and principles out of a study of applied science to be effected? Or again, Is it possible to organize science materials, while following such a plan, into logical units of instruction having educational value?

Time and experience alone can fully answer the first of these questions. At the present time, however, a partial answer, an answer so far as the first course in science is concerned, is being worked out. Some of the one-year courses in general science now available is the tentative answer. Natural science, *organized knowledge concerning nature*, is not a static thing; it is ever changing; it is ever expanding and presenting new insights and new problems concerning human welfare. Likewise, no course in general science can long remain static; it must be modified and adapted to the ever changing content of our knowledge concerning the natural world about us. Nevertheless, certain fundamental principles of organization would seem to be permanent and abiding. It is the purpose of this paper to point out some of those permanent fundamental principles.

SCHEMATIC OR GRAPHIC ILLUSTRATION OF THE ORGANIZATION OF SCIENCE COURSES

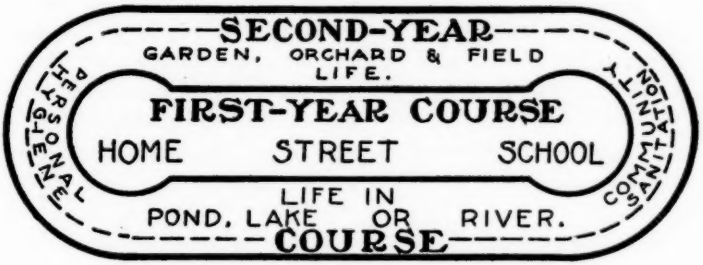
Unsatisfactory and incomplete as it must necessarily be, schematic or graphic illustration of courses of study is frequently of value because it gives at a glance the essential features of the organization. A common organization of science courses, as they have been arranged in the past, is shown by the following:

1st Year	2d Year	3d Year	4th Year
Physical Geography; Physiology	Zoölogy; Botany	Chemistry; Physics	Physics; Chemistry

The Biology Committee of the National Educational Association presented the following scheme at the meeting in July, 1916:

General Course Required				Elective Courses	
1st Year		2d Year		3d Year	4th Year
Physical Science	Plant Life	Animal Life	Man	The Special Sciences	

Such an organization as is presented in either of these schemes has aptly been styled a "vertical stratification of science." In contrast to any similar organization of science courses we suggest the following as indicating the field or scope of general science courses covering the first two years:



Such an organization of science presumes that the science materials for the first year's course shall be selected chiefly from the applications of science as found in the home, in the school and along the street leading from the home to the school. Naturally physical science materials, such as lighting and heating systems, refrigeration, water supply and sewage disposal, the use of labor-saving machines, together with the weather, climate, food and nutrition, micro-organisms, and similar materials will chiefly comprise the course and personal and community welfare will be the crucial point of attack. The second year's course will reach out on every side for materials and will include plant and animal life as found in the garden, the orchard and the field, in the pond, river, or lake. It will also include a more complete study of personal hygiene and

community sanitation. The second year's work will, therefore, deal chiefly with biological materials although the influence of physical environment will everywhere be an important consideration.

Science materials as commonly organized in the special sciences may properly be said to be organized into man-made units while the materials in general science may properly be said to be organized into Creator-made units. Nature presents no fundamental relationships, no functioning activities, which necessitate the study and comparison of all the forms and variations of roots, then of stems, then of leaves, and finally of fruits before a student may proceed to study and acquire an understanding of the essential characteristics of the corn plant and of the conditions best suited to its growth and maturity. Nature presents as a logical unit of study the *relation between* the root of the corn, the stem of the corn, the leaf of the corn, and the fruit of the corn. The entire corn plant together with its relation to the soil, to moisture, to climate, and to the animal life which affects its growth is the natural, Creator-made unit. A study of corn, then of wheat, then of clover, then of the potato, then of the beet, then of the onion, and so on, until the plant life of the student's environment is fairly covered enables the student to grasp all of the essential principles taught in special science and at the same time approaches the various problems along the line of his natural interests.

Similarly, there is no intrinsic value to the girl in the study of all forms of gears, and all the various systems employed in the transmission of mechanical power before she is permitted to study a concrete case. The girl who drives a car is certain to be interested in the transmission system of her own car and she delights in obtaining such a knowledge of it as will enable her more completely to control her car as a result. But the real unit of study which appeals to her as logical and natural includes the essential mechanical features of the car; it includes, not only the transmission system, but it includes as well the source of power and the controlling devices; it includes proper mixtures, proper timing of ignition, spark plugs, magnetos, and storage batteries as well. Moreover, she must see all of these in their proper relation to each other.

Such an organization is the Creator-made unit, the unit of applied science. Such an organization presents the unit which has significance and therefore is of interest to her. Such an organization may properly be called a "horizontal stratification of science" in contrast to the "vertical stratification of science" as presented by special science.

There is positively no difficulty in organizing the science materials involved in such courses into suitable, logical units of instruction of as great, if not greater, theoretical educational value than are the usual units of special science. In addition, experience shows the writer that such an organization of science materials secures and holds the interest of the student, with the result that a permanent, abiding interest in science is developed and a permanent scientific attitude of mind results.

It is as yet a question whether the recommendation of the Biology Committee, that the last two years of the high-school course shall be devoted to the study of elective special science, is the best possible solution. It is doubtless true that with greater maturity and with fuller knowledge of the significance of science there comes a time in the life of each of us when we do develop an interest in the abstract, philosophical aspects of science. Whether that stage is usually reached by the student when he enters upon his Junior year of high-school work is a question. Many students of education doubt it. In any case it would certainly seem wise that in most high schools specific courses in agriculture, domestic economy, and household science should find a place in the last two years of high-school course.

THE SPECIAL SCIENTIST'S CONTENTION

The contention is made by some of the advocates of special science that the reorganization of high-school science along the lines here proposed means the reversing of the wheels of progress in all science teaching. The special science teachers in colleges and universities have been bold in declaring that the work done in the high school has to be done over again in the college classes; they say that there is really little difference in the progress made by those who have had the high-school work and those who have not.

But some of the advocates of special science insist that we are just now at the turning-point; they say that we are just now realizing our mistakes, that we have just discovered how to adapt the subject-matter and methods of instruction so as to secure and hold the interest of the students and to teach science courses successfully. In short, they say that we have just learned that special science courses must be humanized. Moreover, they point out the fact that all college and university instruction prepares the young high-school teacher to teach special science. "If these teachers have not made a success of teaching special science in the high school," to quote one of their most distinguished leaders, "the mess they would make of it were they to attempt to teach general science must be left to the imagination." In general, they say that to abandon the teaching of special science, in a part or all of the high-school course, and adopt the general science organization would mean the forfeiture of the progress made, and a loss of the benefit of the experience gained, during some two or three generations of science training and science teaching and to turn a well-ordered, logical system of instruction into confusion and chaos.

THE ANSWER

These champions of special science have not yet proved, nor do we believe that they can prove, that any of the special sciences as now taught in the high school are gaining materially in interest, popularity, or effectiveness. Nothing is more evident than that physical geography and physiology, commonly first-year science courses, never before suffered so great a decline as during the past five years. First-year general science has already largely displaced them. Botany and zoölogy are, in many sections of the country, giving place to agriculture. The records of higher institutions requiring elementary physics and chemistry for entrance to certain courses show an ever increasing percentage of applicants knocking at their doors without these prerequisites. If special science courses are really gaining in popularity, interest, or effectiveness, available records do not reveal the fact nor does the testimony of students, science teachers, and administrative officers reveal it.

Again, however true the contention may be that college and university courses in science prepare the young teacher for teaching special science only, this fact does not justify the retention of such courses in the early years of the high school, if our contention that such courses are unsuited to the interests and needs of beginning high-school students is valid. If special science is not in harmony with the foundation principles which underlie successful science teaching in the early years of the high school, the remedy lies only in a readjustment of the science courses in such colleges and universities as aspire to prepare high-school science teachers. The public high school exists for the benefit of the children of the common people; it must be so organized as best to serve the interests and welfare of the millions of young people who must complete their education within its doors. If the usual courses in special science now offered by the higher institutions do not prepare the teacher to teach general science, colleges, universities, normal schools, and teachers' colleges have no alternative but so to adjust their courses that their graduates *can* properly handle the courses required by the high school.

It is not certain, however, that teachers fairly well prepared to teach the special sciences cannot also teach courses in general science with fair success. In all the smaller high schools, the country over, science teachers are now teaching, not a single science, but often all the sciences and frequently other branches, such as mathematics, literature, or history. It is common practice to require the science teacher in such schools to take charge of the work in agriculture or domestic science. Furthermore, during recent years, courses in general science have been taught in many schools by these same teachers trained only in special science. That such courses in general science are being continued year after year and are, in general, being pronounced a success would seem to be a sufficient contradiction to the statement that our present corps of science teachers are not fairly well equipped to teach general science.

SUMMARY

It is our contention that special science in the high school has been a disappointment, not chiefly on account of poorly prepared

teachers but chiefly because the selection and organization of subject-matter and the methods of approach and development have been fundamentally unpedagogical. The natural interest of the student just beginning the study of science lies in the applied phases of science as it affects his own personal welfare and the welfare of the community in which he lives. The fourteen-year-old boy or girl is not a philosopher; abstract generalizations and principles of science, that is, special science as usually taught, so-called "pure science," is foreign to his interests and his ways of thinking and is therefore distasteful to him. Only the genius, the teacher of unusual personality and ability, who is inspired by his own devotion to the subject, can interest a class of beginners in that phase of science. The ordinary teacher, on the other hand, who is fairly well prepared in the academic phases of science can succeed fairly well with the beginning class if the materials are organized as general science and the materials selected deal with the applied phases of science as found in the environment of the student, because he then has the natural interest of the student to aid him.

SUPERVISED STUDY IN THE EVERETT HIGH SCHOOL

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Pointed necessity quite as often as deliberate choice brings us to a break with old conditions and opens the way to radical progress. The introduction of the double-period program in any high school is a radical step; just how radical it is may be grasped by a comparison of the schedules of the English, history, and foreign language departments in this high school in the first semester of the year 1914–15 with the second.

THE CHANGE

Under the old schedule the school day began at 8:55 and closed at 2:35. The first twenty minutes were given to a study period in the rolls and then followed seven forty-five-minute periods. Two of these were lunch periods, in one of which each student and teacher had forty-five minutes for lunch. Seven study-hall periods and seven library periods were maintained, with a teacher in charge of each. Required gymnasium work was taken twice each week by all first-year students at the time of one of their study periods. To accommodate special groups of students, classes in benchwork, mechanical drawing, and typewriting were offered at 8:10 each day. Teachers regularly taught five classes, none of which we aimed to make over twenty-five in membership.

Under the new program, the school day extends from 9:00 to 3:45—four ninety-minute periods and a lunch period of forty-five minutes. We have no separate rolls; the first-period teacher acts as roll teacher for the members of his class. As before, we have two lunch periods, splitting the third period, as will be explained later. There are no study-hall periods; in their stead each student in regular assignment has three hours of supervised study daily—forty-five minutes with each of his four teachers. Approximately half of the classes recite the first half of the period; the others have

study first. Gymnasium work twice each week is taken during the study period of one subject and for the study period missed the work must be prepared at home. Work in several half-credit subjects is offered at 8:10, and from 100 to 250 students come at that time. Teachers regularly have four classes, excepting in a few instances where two small sections of advanced work have been combined in one ninety-minute period.

CAUSES AND PURPOSES OF REORGANIZATION

The completion of the first survey of the high-school records showing that slightly over 20 per cent of all the students during the four years previous had failed, dropped out, or been incomplete brought sharply to the mind of every member of the faculty the need of solving the problem of the draining away of this large percentage.

During the first semester every classroom was in use every period of the day excepting the two lunch periods, while the study-hall rolls ran from 150 to 240 students. An eighth period was inevitable, which meant an additional study-hall period for each student, or an increase of an average of 110 students for each study period. Since the Study Hall seats but 250, it followed that additional study halls must be provided, with teachers in charge, for each period of the day. A mid-year class of 175 which was about to enter the high school meant more classrooms, more teachers, and more teaching periods.

This change was induced also by the feeling that the study of the pupils at school was wholly ineffective. The large study-hall rolls, numbering about 200, with the noise and distractions incident to the activity of so many, furnished anything but an atmosphere of study. This study, where seriously undertaken, was entirely unsupervised and often led aimlessly nowhere. It was impossible to secure adequate reference work in the library, and where any class study was undertaken it was at the expense of regular recitation work.

We came to feel that a considerable share of the home study was likewise ineffective and futile. By letters to the parents and patrons, by special tests, by supplication and adjuration, efforts

to secure the two hours of home study necessary for strong work were made, but in vain. As teachers we realized that the finest intellectual atmosphere existed in many homes, but for the most part, home study was ineffective. In many cases poor light, family conversation, the performance of home duties, the ebb and flow of the family life effectually cut off the student from quiet, effective study. Again, the pupil was caught by some difficulty, father and mother could not help; and after considerable floundering about, the time was wasted and nothing done. In many other cases the pupils were out of the home every night and no effective study resulted.

With this feeling, therefore, of helplessness in the face of poor lesson preparation, we approached the problem of reorganization with these broad purposes before us: to render our work more valuable by improving the quality of instruction and by improving the quality of material covered; to bring the pupil and teacher together in another and more helpful relation; to make of the recitation hour something more vital than a quizzing and testing time; to demonstrate that in our work the teacher had not become an automatic recitation-receiving device and a machine lesson-assigning apparatus; and, summing it all up, to secure vivid, lasting, and solid results by securing purposeful, directed, economical study.

During the morning-roll study period of twenty minutes a determined effort was constantly made to connect up the work by helpful criticisms and directions, but in many cases pupils in study rolls had no recitations whatever with the roll teacher, and hence could be given little effective assistance. Likewise the study-period and library-period teachers were anxious to assist the students, but, for the same reasons, little was accomplished.

For a considerable time an afternoon study-class of forty-five minutes was maintained, with a competent substitute teacher in charge, and students were permitted or strongly advised, as the case required, to attend this special-help class. Much good was accomplished, but the range of work in which the teacher could offer really effective help was far short of the entire range of high-school activity.

For many years every teacher was required to remain at least twenty minutes each night in his classroom, and, on one night each week, for an entire period, to offer assistance to those students who desired it. Here again much good was accomplished, but the time of day was not favorable for help, and most of the teachers felt that there was too much of going out into the highways to compel them to come in.

The latest development in the effort to bridge the gap between teacher and pupil was the adviser system, whereby each faculty man acted as a sort of big brother to a group of the boys and each faculty woman sought to help in every way possible a group of the girls who had been assigned to her. In hundreds of cases a splendid relation has grown up, and the plan is still in use.

SPECIAL PROBLEMS THAT WERE TO BE SOLVED

The problems of adjustment group under four heads: the course of study, students, teachers, and daily program.

The course of study.—For the first time the so-called two-period subjects came definitely into their own. In scores of cases students had avoided them, since it required *two* periods to earn *one* credit. At once increased enrolment in science, vocational, and commercial subjects was apparent. A corresponding advantage accrued at once to the half-credit subjects, penmanship, commercial arithmetic, typewriting, art, etc., for now several of them could be taken for forty-five minutes daily with half-credit, or ninety minutes daily with full credit. Again, any combination of two of them could be taken during a double period and a half-credit in each earned.

Properly arranged field trips were very difficult to carry out under the old schedule, and practically nothing could be done before the close of school in the afternoon. With a full hour and a half at the disposal of a class, very successful short trips have frequently been taken by students in botany, biology, chemistry, physiography, and agriculture.

It was customary under the old schedule to have chorus during the twenty-minute morning-study period three times each week. Under the new schedule, all work in music goes to the period

following the close of school. The result has been beneficial in the extreme.

Under the old schedule, students in gymnasium *had to go* twice each week from their study-hall period, with the result that the classes always contained students in each semester of the work. Under the new plan, it has been easy to keep the students separated by semesters, and the gain has been very satisfactory.

Purely from the standpoint of administration of the course of study the change has been easy and exceedingly beneficial in every way.

STUDENTS

Reducing the number of recitation periods per day from seven to four tended to make the program less pliable, and much consideration was required to solve the various students' problems that arose at once. In the first place, a large number of students in an industrial community like this are required to work in order to be able to attend school. By special resolution of the Board of Education, students may be excused at three o'clock daily in order to retain their positions. This granting of forty-five minutes to about thirty students each semester has solved that problem.

A number of postgraduates have always been in school doing special work. The desire to give them the greatest possible assistance and to make the most of the double periods led to the establishment of a full year of college and normal work.

The unclassified student who desires part work and the bright student who desires and can carry five subjects presented probably the most serious problem to be solved. Finally, by a rather simple expedient, we were able to care for these groups. Approximately half of the classes were assigned to study during the first half of the period and to recite the second half. The remainder were assigned to recite first and study second. By this means the unclassified student could get two subjects in an hour and a half and prepare both at home, and the five-subject student could recite in both halves of a period, prepare both at home, and take the other three subjects in the regular periods.

This arbitrary arrangement could be varied to meet the particular needs of the individual pupil also, and has rendered the

program even more flexible than the old program, for it has eight half-periods into which to schedule the students rather than the seven periods of the old schedule.

The bright student deserves careful and special consideration, and by this plan we have been able to provide four and one-half, five, and five and one-half credits of work, according to the interests and abilities of individual students. We have adopted also the plan of permitting pupils to schedule for an extra half or full credit in the subject of their greatest interest, and by special assignments and library work have been able to extend the scope of the work to justify the special credit.

Small sections of advanced work have always presented serious problems in cost maintenance. Cutting the number of recitations of teachers from five to four made even more serious the problem of the small class. This was completely obviated, however, by combining two small classes of advanced work in a period of one hour and a half, and giving that teacher thereby five classes daily. It is by this means possible to maintain a class of but a very few members, since the cost of tuition is shared by some other small class. We have had six or seven of these combined classes each semester, and the plan works very well.

Conflicts we always have with us, but with the classes varying as to recitation and study, and with eight instead of seven periods to schedule into, the double-period plan offers even a wider range than the single periods and conflicts are correspondingly reduced.

From the standpoint of the student, therefore, the advantages seem to lie with the double periods.

TEACHERS

The question has repeatedly been asked if the double-period plan did not require more teachers than the single-period plan. By means of combining two small sections of advanced work into one double period, by raising the limit of the number of students in large classes from twenty-five to thirty, by abolishing the study halls, thereby releasing seven periods of time of the best teachers in the high school, and by having a librarian, thereby releasing seven more periods of time, we have been able to care for more

pupils per teacher than under the old plan. Table I shows the relative numbers of pupils to teachers during the past five and one-half years; in the last two semesters we have had the double-period plan in operation.

TABLE I

Time	No. of Teachers	Total Enrolment	Average per Teacher
First Semester, 1910–11	27½	584	21.2
Second Semester, 1910–11	27½	525	19.1
First Semester, 1911–12	32	600	18.7
Second Semester, 1911–12	32	594	18.5
First Semester, 1912–13	33	559	16.9
Second Semester, 1912–13	33	679	20.6
First Semester, 1913–14	34	691	20.3
Second Semester, 1913–14	36⅔	760	20.9
First Semester, 1914–15	38½	800	20.6
Second Semester, 1914–15	41 9/10	923	22.1
First Semester, 1915–16	42½	970	22.6

Teachers regularly have four classes each day which average from three to five pupils larger in number than under the old plan. The school day is over an hour longer, giving the only vital objection to the double-period plan, for we feel that in some cases it makes the period of continuous work too extended and wearing both upon the teachers and the pupils. This is balanced in large measure by the fact that the teachers are able to prepare their work during their study periods, thus reducing the amount of night work. It is not necessary to hold protracted sessions after school hours with students who are behind in their work, for abundant opportunity offers during the forty-five minutes of study with each class. The study period was particularly a teachers' problem, and it required some legislation and much effort to get all the teachers to realize that quiet study was better for their students, while affording them effective work in lesson planning and the correction of papers.

THE DAILY PROGRAM

As might be expected, the most serious problems were involved in the construction of a workable daily program. I have attempted to enumerate the principal problems we encountered and in a brief statement to give our solution for each.

In order to secure the proper amount of supervised study it was necessary to lengthen the school day from four hours and fifty-five minutes to six hours. This meant a continuous session from 9:00 A.M. to 3:45 P.M., with a forty-five minute lunch period at noon. While the day seems long, it disposes of the grave question involving the economical use of an expensive school plant that was occupied less than five hours per day.

The handling of attendance records was in the hands of roll teachers in designated roll rooms. By making the first-period teachers the roll teachers for their classes, the rolls were much smaller and more evenly distributed.

The lunch period would have presented no difficulty had we been able to close school at 12:00 M. and resume at 12:45 P.M. or 1:00 P.M., with all pupils and teachers dismissed at that time. The limited cafeteria service precluded that system, and we were compelled to retain the two-lunch period plan, with approximately half the pupils and teachers dismissed for each. The problem was solved in this way. Half the teachers were assigned to go to lunch at 12:00 M., and all the students in their classes likewise went to lunch at that time. These teachers and pupils assembled at 12:45 P.M. to begin their third-period work. The other teachers were assigned to go to lunch at 12:45 P.M., hence they met their third-period pupils at 12:00 o'clock and held the first half of that period's work. At 12:45 P.M., teachers and pupils went to lunch, and reassembled at 1:30 P.M. for the last half of the third period. This so-called splitting of the third period solved a serious problem, and has proved very satisfactory.

With forty-five minutes given for lunch and but twenty to twenty-five required for lunching in the cafeteria, the problem of providing a gathering-place for students for the remainder of the period has always been troublesome. Under the old plan, with the Assembly Room in use as a study hall, students were permitted to enter the Library until the chairs were all occupied, to go into the Study Hall if they desired to study, and to gather in several classrooms not in use that period and especially designated for that purpose. At present, the Study Hall is utilized as a gathering-place, and, with the large number of desks and ample space, is

much more satisfactory in every way. In the same way, under the old plan, from four to six teachers were constantly on hall duty during the noon periods; since the introduction of the double-period plan and the use of the Study Hall, no teacher has been on hall duty.

A very serious problem arises out of the fact that a considerable number of country pupils spend the week-end with their people. Boats, trains, interurban cars, and auto stages leave at 3:00 and 3:30 P.M., and we have found it necessary to excuse many students early each Friday afternoon in order to reach their homes that evening.

The system of segregated classes has suffered somewhat by the introduction of supervised study, for it has proved impossible to arrange the schedule to afford as nearly complete segregation as we had under the old program. By special care in planning the new program, however, we have been able to continue most of the classes we desired to segregate.

Just how to get the greatest use out of the Library required special and careful consideration. With the Library adjacent to the Study Hall, it was possible for students to secure library assistance quickly and easily, although much time was wasted through unskilful searching for needed material. With the change to double periods, two plans were adopted to secure the greatest possible use of the Library. First, students are now assigned directly to the Library by the class teacher for work with the general reference books. Secondly, large numbers of special books are drawn by the teachers for use in their classrooms, and are available for reference by the students without leaving the room.

Assemblies are held whenever occasion requires, usually at 9:00 o'clock, and lasting thirty minutes. Under the old program, the time of one of the twenty-minute morning study periods was taken; now we take fifteen minutes from each double period in the morning and go on the regular program at noon. This plan works less hardship upon the class work and is much more satisfactory.

High-school gatherings in the evening on school nights have always been more or less under the ban. With these hours of

supervised study during the day, many of the old objections have disappeared, and we are now permitting many more of these gatherings—inter-group basket-ball games, class parties that close about 9:30 P.M., literary meetings, etc. Supervised study has worked greatly to the advantage of the high school as a community center.

THE PROGRAM IN OPERATION

After two semesters' trial, we have come to believe that from every viewpoint supervised study has been a success. We know that each pupil has a chance for at least three hours of quiet, effective study, and actually does some study. The bright student who can get his lesson in fifteen minutes has been provided for by better and more extended reference work—especially in history, English, and science. The direct result has been more and better organized work, leading directly to a rise in the standard demanded. We have found that the students who are carrying two subjects in the same period and preparing both at home are the ones having the most trouble. In the same way, the students who are excused for gymnasium twice each week from the study period of some subject have special difficulty in keeping up in that subject. Students who cannot concentrate upon the preparation of purely academic work or who will not give the systematic and thorough attention to the preparation of this work—that small group who are in school in order to enjoy a respectable loafing place—are, some of them, finding a place in the purely technical and vocational subjects, and the rest are being rapidly and effectively eliminated from the school. Although the day is longer, the interest does not flag, the pupils are not overwearied, and the work of the day is nearly all completed at the close of the school session.

Supervised study helps the teacher, for he sees the effort put forth by the students—he sees the student mind at work. This opportunity leads unerringly to a finer appreciation of the viewpoint and difficulties of the pupils, and in turn to better assignments, better teaching, and consequently better results. Since the teachers are able to do most of their lesson preparation in class, they are not called upon for as much night work.

On the whole, parents approve of the plan, since they realize the advantages of study with more favorable surroundings for study than the home afforded. Two criticisms of parents have reached me: one that the double-period plan made it more difficult to keep the children at home evenings, for they no longer had so many lessons to prepare, and the other that this plan permitted the parents to take the children with them to their places of social recreation without a sense of sinning against their children's future welfare by taking them from their studies. Aside from the longer day, a large proportion of the students offer hearty approval of the plan, as several frankly written and unsigned criticisms attest; and the reasons most often assigned are the privileges of efficient help, saving time, more time for outside activities, better grades earned, etc.

The question has frequently been raised by teachers whether or not supervised study might not result in dependent students. There is a danger here—just the danger that has always existed in science laboratory periods, shop classes, mechanical drawing work, bookkeeping—no more, no less. The teacher might be drawn into doing the work for the students, but is not. The fact is that supervised study has led to a very great increase in independent study; there is no use in borrowing problems and exercises, when the pupil has the time, and supervision, and help to do the work himself. Quoting the words of a neighboring principal in whose school supervised study has been in successful operation for several years, I sum up the problem of adequate lesson preparation, thus: "The double-period plan certainly calls the bluff on the bright rascal who has been giving about ten minutes daily to each lesson, and passing. Having nothing else to do, he studies throughout the period and does excellent work in spite of himself."

In conclusion, we believe that supervised study in the form we have it is a success, but not the final solution of this great problem; it is a step, an arrow, at once an indication and the recognition of a tendency to correct one of the weak spots in our work. It will serve its day and purpose, and be superseded by some plan which will eliminate the difficulties and add to the advantages which we have noted for the double-period plan.

EDUCATIONAL IDEALS OF 1850

JOHN M. MANLY
University of Chicago

Few things are more remarkable in the history of human culture than the length of time often required to secure the adoption in practice of ideas which even on their first statement commend themselves to every intelligent man as not only true but of immense practical benefit to the community. Many notable examples of this difficulty are furnished by the history of education; but no more striking instance can be found than one illustrated in the following letter. Every educated man knows from his own experience that the process of education is fruitless and vain until it becomes for the student himself a process of active, vital co-operation with the forces, personal and impersonal, which are striving to educate him. Everyone knows that the whole problem of education is not the infusion into a passive mind of a more or less extensive and more or less useful mass of organized information, but the awakening of the mind to activity and the training of it in effective and fruitful methods of study. And yet, even today, a large body of so-called teachers regard their functions as properly fulfilled when they have presented their subject clearly and forcibly and ascertained what percentage of the expected acquisition each student has obtained. Years ago, as the following letter shows, thinking men had reached the conclusion that the teacher's proper function is to teach, not to act as an education gauger.

Of the persons concerned in the letter one is well known to all America. J. L. M. Curry, later a distinguished legislator, diplomat, and educational leader, best known as ambassador to Spain and general agent of the Peabody Fund and the Slater Fund, was, at the date of the letter, a promising young lawyer and a member of the Alabama legislature. H. E. Taliaferro (pronounced "Toliver") was a warm personal friend of Mr. Curry, a man of fine public spirit and editor of the *Alabama Baptist*. The writer of the letter, Dr. Basil Manly, had become president of the University of

Alabama in 1837, and, in the fourteen years that had elapsed since then, had gathered about him a notable staff of instructors with whose aid he had given the new university a place in the foremost rank of American colleges. The educational ideals and practices of the University of Alabama were in many respects far in advance of the time—especially in the teaching of the sciences. Dr. Manly himself was widely known for the vigor and independence of his thinking, the sanity of his judgment, and for his interest in every measure for the benefit of the commonwealth. His advice on matters of education was sought, not only by the leaders of the South, but also by such men at the North as Francis Wayland of Brown University.

The community of Talladega in which it was proposed to establish the school in question was one of the most enlightened and progressive in the country. Some of its notable citizens were Mr. Walker Reynolds, a large planter, a man of cultivation and refinement and of large public spirit, Chancellor Bowie, one of the leading jurists of the South, General L. W. Lawler, later governor of Alabama, and the Welshes, the Mallorys, and others whose names are written large in the history of the state and the nation.

Why the school was not established as planned is not recorded in Dr. Manly's papers and I have no information on this point. It seems probable that the establishment of a private institution was abandoned in view of the passage of a bill for the establishment of common schools throughout the state of Alabama by the legislature of 1853. This bill, which was ardently supported by young Curry, was drawn up by Judge A. B. Meek, of Tuscaloosa, noted in his day as poet and jurist.

UNIVERSITY OF ALABAMA, October 23, 1851

Rev. H. E. Taliaferro and
J. L. M. Curry, Esq.,
Talladega, Ala.:

MY DEAR BRETHREN: As both your letters are of the same purport, you will forgive my using the absorbing nature of my engagements as a reason for replying to both at once.

The object is a noble one; it is a benefaction to a people to raise and maintain a High School, greater in pecuniary value than 25 per cent added to the value of all their property within five miles of its location; but in its bearing on the minds and morals—the highest welfare of the rising generations for

all the period of its continuance and, with regard to some, for all existence—confers *incalculable* benefits.

If the state were in a condition to organize and support a proper system of public schools, in all the varied gradations and dependencies, *for the whole population,* there are some advantages connected with such a system that plead strong for it; and perhaps ought to induce us as patriots to forego the establishment of schools by individual effort,—at least till the other system has been tried and found a failure. But there is no reason to think that the state will be in a condition for generations to come, to enter appropriately on such a work. The only resource is to found and maintain schools by individual effort and enterprise.

What are called denominational schools should be rightly understood. They are not *sectarian.* Literature and science are not sectarian, and cannot by any artifice or device be tortured into the encouragement of illiberal or bigoted measures. But as it is important that a religious element should be infused into every educational establishment, and as each denomination works more harmoniously and steadily and peaceably when working by itself, in things within its power, denominational schools have been wisely resorted to,—not to teach sectarian doctrines nor to lay the insinuating hand of proselytism on every thing that passes under its shadow, but to shed the genial influence of our common Christianity on all alike, who wish to pursue liberal studies. When such schools are established by different denominations, convenience of abode will produce many interchanges of patronage, while the principles of reciprocity (and possibly the power to retaliate) will keep each steadily attending to its proper vocation.

It is an incidental advantage to a denomination to have such a school under its care, as it more perfectly draws out their energies, unites and concentrates their productive ability, gives mutual support and confidence, establishes a visible tangible center of power, and throws weight and consideration into every public movement, both local and general. It is not possible for a denomination to retain its own proper grade of equality among others who support schools, while itself has none. If Probaptists have High Schools, Baptists must have High Schools—why as man and woman will come together and make one—it may be sufficient at first, by way of compromise, and as a "fair divide" for Baptists to have High Schools for boys. Even this, if left wholly to you in Talladega, will be only an approximation to equity, for the girls will have all the "shine" to themselves—*there* will be the lavish expenditures, all the eager solicitudes, all the popular excitement—and the boys will inevitably flock (both old boys and young boys) to the places where the girls congregate.

Besides, those who are to be the mothers of the next generation will inevitably control the religious denominational preferences of their children. For the first ten years of life the mother has exclusive control, and even after that the father seldom interferes with the religious direction previously given to the thoughts and feelings of the child by the mother. So that, whether we

regard *immediate* or remote *results*, it seems to me that Baptist institutions for both sexes must go on, *pari passu* with those of other denominations, and are indispensable to denominational equality and success.

Schools for girls are taking, too much, the character of tinsel and superficialness. Sound elementary instruction is despised and slid over with haste and neglect; and that first and most necessary of all teaching is almost unattempted (uncultivated, indeed) i.e. the teaching of the child *how to study*, how to use its powers in the requisition and digestion of Knowledge.

A school, in my judgment, should be so arranged that every class (of course every individual pupil) should study in the *presence* and with the *aid* of the teacher. The *Head* should be a *man*, of comprehensive executive ability, and females can be largely and most advantageously employed for subordinate parts, certainly for all the juvenile classes—and usually when their education and talents are adequate to make a decided impression. They have no feeling of rivalry, no aspirations to Headship, no private favor to seek; they just know how to obey orders and carry out the wishes of the principal; they may be employed at half the cost of men, and thus numbers may be received for carrying out the plan of teaching a pupil *how to study*, as above suggested; while if the principal has but little of class instruction thrown on him, he can perambulate the halls and apartments, throw his presence and energy into every room, secure discipline and order, and educe every description of talent which either the teacher or the taught may have.

Schools, as I see them, have practically resolved themselves into establishments for receiving the evidence of the fidelity and success with which *someone at home* (usually the mother) has imparted knowledge to the pupil. The *true* teacher is some *nameless* one in domestic retirement, not on the list of the "Faculty," as published in the annual exhibit. If that private teacher is a good one, the child is *well taught;* and if those home lessons are, for any reason, omitted, the child, as to so much, is for all useful purposes *untaught*. This is my experience, and my observation brings out the same results as to the children of others. My sending to school, when analyzed and reduced to its elements, is this: paying a high price to a professional and *professed* teacher, in order to oblige myself and wife to be very punctual and exact in *doing the labor* of teaching our children and then going once a year or so to see others very complacently and with all due flourish receive the credit of it.

Now give me a teacher "as is a teacher," if you please. Till a pupil has acquired the art and habit of close, patient, intelligent and successful study—so as to be left alone without injury, let every lesson be got in the presence and with the instant directing and prompting of a teacher whose attention for the time is not devoted to any other object; let the periods of attention to one subject be divided into such portions of the aggregate school time as may suit the general plan of the school and the number of studies embraced in the courses of the several classes (we will suppose forty-five minutes to each); let the first two-thirds of this time be devoted by teacher and pupils to the thorough acquisition of the lesson, everyone being kept on the *qui vive* by the

keen and active method of the teacher; and then let the latter third be devoted to testing the promptness and accuracy of their several acquisitions, taking care to sound the younger, feebler, and slower minds for the purpose of waking up the laggards. Then let this class file out of one door into another room, to undergo the same process with another subject under another teacher, while another class comes in by a different door to undergo that process in a subject new to it in this room and with the direction of this teacher.

Thus let the school shift from room to room, from subject to subject, from teacher to teacher, at regular periods marked by a bell or gong, during all the school time, without noise or crowding in the passageways or stairways; let the teachers and monitors, to secure this, take their proper positions while these transits are made, and let the buildings be constructed with rooms, passages, doors, stairways, etc., to suit the plan. I would have even composition attended to partly in this way. Give the young rogues a theme, on the instant, and require them to plunge right into it, like a terrapin into a pond, and do their best for a half-hour or three-quarters. Then the teacher can examine their productions leisurely and make the next period devoted to that kind of composition, the occasion of correcting and criticising, by himself and by the members of the class.

Oh, it is mournful to go into a school and see the waste of precious time and more precious mind by mere inanity, meeting some little difficulty and stalling and balking and flying back, till disgust and fretfulness ensue. And then, for all hist, the teacher has no remedy but a scold or a strap; and what good, pray, does this do? Thus the child is wearied, confined, and disgusted in the school room, and when it comes home, there is no rest, no recreation, no relief to the bent and oppressed spirit. The mother's voice, which should be like a balm to the soul, hurries the poor child at meals, hurries it from bed, hurries it to lessons, tortures and harasses it all the time and makes home irksome, while the father's stern look of disappointment if he scrutinizes the child's acquirements, is like the "iron entering into the soul." You call this education, do you?

For advanced pupils that know how to study, side seats may be provided in the rooms, if need be, where this system of studying and teaching is going on. They will not be interrupted and it is important that they should cultivate the habit of close application, regardless of the presence or different employments of others in the same room; and they can be heard at convenient periods and in the proper rooms, especially when the juvenile squads are in recess.

This general idea, reduced to its practical details, has been my ideal of a school ever since I could reflect maturely on the subject. I never saw it attempted. I have wished most heartily to see it done. I have done it, in a small way, in my own family and this is practically the way that all family teaching is done. But not many months past, I found the details of an actual school system that has reduced to practice all my favorite theory: it is that of the Central High School of Philadelphia, under the management of John S. Hart. While I was busy in New York this summer, I got Professor Garland

to go there and see its actual operation for a day or two, and become familiar with its details. He is all admiration, as I expected, and says that he should ask no greater privilege on this earth, of that kind, than to reside where he might enjoy for his children the benefit of that school. It is a part of the public school system of the city and county of Philadelphia, and the wealthiest men place their children in the free schools, in their several gradations, that they may become eligible at the proper age to admission into the High School, which is also free.

I see you are all under the excitement of a "bright idea"—How shall we get such a school in Talladega? As I do not know your professional teachers, candidates, etc., whether they have the nerve and the good sense to comprehend and execute a beneficent scheme like this, I will just make a suggestion. I have a young married man in my eye that I think might go to Philadelphia, see the working of the school of Mr. Hart, become familiar with its details, get a plan for buildings to suit the actual working of your intended Seminary, engage a part of his teachers familiar with his plans (the remainder to be supplied at home), and having worked himself into an enthusiasm, let him come home and *go to work*. I think he will do. Do you ask who he is? It is Jabez L. M. Curry, Esq., of Talladega.

Now I have done the best I can for you. You are welcome to do as much better than this as you can.

God grant you good success in all good things.

Affectionately,

B. MANLY

They have an iron chair with broad writing tablet before, and an inkstand fitted into it, capable of being closed by a valve. These are made in Providence, R.I. Dr. Wayland has his lecture rooms supplied with them. They cost 3.623 each. They are worth all they cost, can be firmly fixed to the floor. Jordan L. Mott, of New York City, has iron school furniture for smaller scholars. There are desks for a side of the room, of most convenient arrangement and fixtures, and there are iron chairs with a good support to the back; the seat and back turning around on a pivot, permitting each to leave his seat without clambering over a bench or disturbing another. These also can be firmly fixed to the floor. I could tell you a *thousand* things but I have not time to write them. Farewell.

A man of right energies who would go to work in the right way, might regenerate the whole system of education in the South, besides making a fortune for himself. The pupils of Mr. Hart's school are sought for, and they command higher wages than any other young men for every department of business. They have 600 in the school, and could have 1,000 if they had room. They intend to make the room and not to have any limit of members but that of the youthful population of the city capable of admission and of using the privileges of the school. Again Farewell,

B. MANLY

THE RESULT OF SUPERVISED STUDY IN THE HOUGHTON, MICHIGAN, HIGH SCHOOL

JOHN E. ERICKSON
Principal of High School, Houghton, Michigan

So many inquiries have been received, asking for information concerning our plan of supervised study, that I have decided to describe the plan briefly and to give the results of two questionnaires, one from the pupils and one from the teacher. I do not contend that the results of these questionnaires have a definite scientific value, but they are of considerable interest to me, and may have some value in regard to the success or failure of supervised study. It will be apparent that there are differences of opinion among both pupils and teachers, but we must remember that there are many factors which enter into the following results that are of such a nature that we are unable to measure them.

Our plan, briefly stated, is that we divide the day into five periods of eighty minutes each. Each period is divided into two parts, the first forty minutes being devoted to the recitation and the remainder to study under the direction of the teacher. The length of the schoolday is from 8:00 A.M. to 12:00 M. and from 1:30 P.M. to 4:10 P.M. We do not pretend to do away with home study but we try to reduce it to a minimum.

During the first semester we allowed each teacher to divide the recitation and study periods according to her own discretion, but we soon found that most of the teachers used too much time for recitation. This semester we have two bells, two minutes apart, at the end of the recitation. During the two-minute interval the pupils are allowed recreation. We find this plan is more agreeable to both pupils and teachers.

The advantages of supervised study are numerous. It is almost generally conceded that high-school students do not know how to study to advantage. This is not because the grade teacher has not tried to teach them, but because she has not had an opportunity to see that her instructions were carried out. Neither is it because the high-school teacher has neglected that phase, but

because the studying has always been done in her absence. Under the old plan of assembly study periods one teacher was in charge of 150 pupils, so that if she maintained good order that was practically all that could be expected of her. She could not devote her entire time to helping pupils, and even if she could, she would not be capable of giving advice in a dozen different subjects. Under the supervised plan each teacher has her class of about twenty studying the same subject, in which she is an expert. In the smaller room with a few students there is less to distract the mind of the shiftless boy, and he will do something simply because everybody else is doing it.

The logical place for the study period is after the recitation. Under the old system the studying was done just before the recitation and was nothing more than cramming. Now the lesson is prepared twenty-four hours before it is recited.

From an administrative standpoint I am heartily in favor of supervised study, as it reduces that miserable police duty which is always so disagreeable to the average teacher. More freedom can be given the students, as they are in smaller groups. This I consider valuable, since we all despise being constantly watched.

After the supervised-study plan had been in operation for six months and the promotions made at the end of the first semester, I asked the students to answer a series of questions. I cautioned them to be honest in their report and not to let little personalities decide their answers, but rather to give the matter their careful thought. I believe they were sincere in their answers, as I did not require their names and I had no way of knowing whose paper I was reading. The following is a record of the compiled results.

Question I.—Do you consider the supervised-study plan better than the old assembly-room plan?

Group	Yes
Whole school	77.7 per cent
Boys	75.6 " "
Girls	79.8 " "
Seniors	67.2 " "
Juniors	78.7 " "
Sophomores	78.1 " "
Freshmen	84.4 " "

Question II.—Do you do your best studying at home or at school?

Groups	School	Home
Whole school	56.5 per cent	43.5 per cent
Boys	63 " "	37 " "
Girls	51 " "	49 " "
Seniors	43.6 " "	56.4 " "
Juniors	57.3 " "	42.7 " "
Sophomores	60.9 " "	39.1 " "
Freshmen	59.7 " "	40.3 " "

Question III.—Are you doing better, about the same, or poorer work than last year?

Groups	Better	Same	Poorer
Whole school	39 per cent	42 per cent	19 per cent
Boys	45.3 " "	36 " "	18.7 " "
Girls	33.3 " "	44.7 " "	22 " "
Seniors	29 " "	47.2 " "	23.8 " "
Juniors	45.9 " "	42.6 " "	11.5 " "
Sophomores	39 " "	34.3 " "	26.7 " "

Question IV.—Do you do less, about the same, or more home study?

Groups	Less	Same	More	Decrease of Home Study
Whole school	49 per cent	30 per cent	21 per cent	28 per cent
Boys	29.4 " "	53.3 " "	17.3 " "	12.1 " "
Girls	29.6 " "	45.7 " "	24.7 " "	4.9 " "
Seniors	49.4 " "	23.4 " "	27.2 " "	22.2 " "
Juniors	31.2 " "	54.1 " "	14.7 " "	16.5 " "
Sophomores	28.2 " "	48.4 " "	23.4 " "	4.8 " "

Question V.—In what department do you think supervised study is most beneficial?

I find the different departments to rank in the following order: mathematics, science, language, history, English.

I then asked them to write why they approved or disapproved of the plan. I received many varied answers, but will quote only those that I consider representative of the majority.

Three typical ones in favor of the plan follow:

No. 1.—"I think the system a good one. That is, if it is run correctly. A pupil can study under the teacher's supervision and ask questions on that study. In forty minutes a student should be able to master most of his lessons, which cuts off late home studying. I often had the experience of studying late at home and not understand my lesson, going to school the next day wholly unprepared. I had not been able to ask questions, when one would have cleared up the whole thing. The system is a quiet one. Formerly, every forty-five minutes, we were tramping about the building going to classes. This way it seems to be less tiresome and keeps the mind on the work more. There is less time for fooling, and the halls are in good order. . . . . "

No. 2.—"I like the supervised study periods better because I get help before leaving the classroom, if I need it, and also know what is expected of me for the next day. I take five subjects, and it is not so hard to carry them under this system as it would have been last year. There are few failures in a class if the students have been given the forty minutes to study the previous day. I notice that there is not so much time wasted this year during study periods. There is better discipline under the present system."

No. 3.—"The new system seems to be better than the old in that a student can get more out of a subject than he could last year. When you have your teacher with you while you are studying, you can consult him as to your work if you don't quite understand it. A person can get his studies easier than before, for he will be helped by the teacher when in serious difficulty, and a teacher knows in what manner to help the pupil."

Two representatives of those who disapprove of the plan follow:

No. 1.—"I do not get any more time to study, because all of my teachers take all the class time, except about ten minutes, for recitation, and in that few minutes I get a hazy idea of the next day's work, and when I get home I don't want to go on with it and so I don't do any more. When you have to stop trying to study one thing and put your mind on something else, it is not as good as doing it at home and not leaving one thing till it is done. We do not see the people in the other classes enough."

No. 2.—"I don't like the supervised-study plan because we are obliged to study or to read over the lesson for the next day so far ahead of time, whereas in the other system we could study our lessons just before we recited, and arrange them to suit ourselves. If it took two periods to prepare a Latin lesson, for instance, we could do that in school and our other studies outside. In this way we study part of each lesson in school and part at home. Too many teachers take our study time for recitation."

In order to find out what the teachers thought of the supervised study, I asked each one to write for me his opinion. I shall quote

only from the heads of the departments as they are representative of the other teachers.

Mathematics, No. 1.—"In my work, mathematics, I like the new plan much better, because there is more time for individual work—giving hints at the critical moment while the pupil has the difficulty under consideration; making up back work; helping those who have been absent to get into line again. I can see how much time it takes each pupil to master his lesson, and am guided in the assignment of lessons. One can get hold of pupils before they are hopelessly lost, as they work in the teacher's presence. If extra time is needed to develop an important idea, the time can be taken from the study period and the next lesson shortened. It does away with the old way of keeping pupils after school to make up work, and thus a teacher is able to plan his work so that it does not interfere with after-school activities such as literary society, band practice, etc."

Commercial, No. 2.—"I like the supervised study plan better than the old assembly plan. During the period of recitation the efficient teacher, to receive and maintain attention on the part of the class, must be alert and have every power tense and active. To do this requires nervous energy. During the period of study the instruction is individual and does not require the intense effort. Therefore the work of the day can be done with less exhaustion to the teacher, on account of these intervals of relaxation. More and better work can be done, because each pupil studies the lesson for at least the study period. The teacher has an opportunity to give any special help needed, and the student can ask a question at the time the query arises and is fresh in the mind, and can secure the answer at the psychological moment for retaining it. Less interruption is noted on account of holidays, etc. In our bookkeeping courses from one-third to one-fourth more work has been done under the new plan. In shorthand the pupils in the dictation class have an opportunity to read their notes before going to the machine to transcribe them, so they read them readily and do not waste time in transcribing them. There are fewer failures, because the weaker students study more and the teacher has an opportunity to give them the needed assistance."

Science, No. 3.—"As a whole, I like the plan of supervised study better than the usual plan in operation in most high schools, as it eliminates the possibility of irregular students, that is, those students who wish to recite in one science section and take laboratory work in another, or those other students who have 'conflicts.' Supervised study of eighty minutes or more allows time for necessary demonstration of experiments for the preparation of the next assignment. Eighty minutes permits time for visits to local industrial and scientific plants in the city.

"However, the plan of supervised study, like other plans, has its disadvantages for the science teacher in that the time for preparation of laboratory and demonstration experiments by the instructor is limited to 'after

school,' Saturdays, and evenings. The early period from eight o'clock to twenty minutes after nine does not seem to be a good period for laboratory work. Furthermore, in general, the laboratory is not as good a study room as an 'assembly' room. Most students with five 'subjects' get too tired to do good work during the fifth study period."

Latin, No. 4.—"I am, naturally, glad to be relieved of hall duty. I find the long hours a great tax on my energy, but I confess that this may be due to the nature of my subject and the kind of supervision it entails. When I really supervise each hour in the day, I am done for by three o'clock. When I sit back, after developing a lesson, I get rested. I find it impossible to take this time from first- and second-year work, owing to the fact that I have, instead of forty-five minutes for drill, a shorter recitation period. If I take the study period for drill, then the student must study at home. I am unable to get results in Latin without some home study. Students don't, however, have to study outside so much as last year. Hence, I consider this plan a distinct gain for the student. I think that if every teacher had four of these hours the plan would be ideal. My objections, are, as you see, due to my own physical limitations and not to the plan itself."

German, No. 5.—"At first I thought, from my own personal viewpoint, that I did not like this system. The dead rush in the morning, together with the long hours, made me often wonder if there would be more than the mere shell left of me by June. Now that I have become accustomed to it, I feel more kindly toward it. Like all other systems, it has its pros and cons. It demands more of the teachers, but is an advantage to the student mass. I find it excellent in my special line of work, but have noticed that the fourth and fifth periods of the day are less easy to control, and I think this may be attributed to the fact that the four solid hours of concentration in the morning react upon the student, possibly upon teacher too. This system is excellent for the student who cannot, or will not, observe a regular study hour out of school, also for those who are willing to just squeeze through, knowing the least possible, doing the least possible. This class, I observe, does little or no work at home, and with the teacher's supervision for thirty-five minutes, must use the time in class to advantage."

History, No. 6.—"I like the present method of study, in that it gives opportunity for answering pupils' questions, allows additional reading in class, and permits the use of miscellaneous and source material at hand in the room. Under supervision, it allows instruction in method of study, including cultivation of the attention for a considerable period, and improvement of memory by studying the lesson without reading, after lesson has been read over; it affords the pupils an opportunity for 'browsing' on the material kept available in the room for this purpose, this 'browsing' having educational value when alternated with hard study; pupils are saved in many cases from carrying erroneous impressions of the work or matter found in the text over to the following day; difficult points can be cleared up when first encountered; sufficient

time to learn the lesson—the classroom work being added to home study—is available in more cases than formerly, thus permitting us to hold pupils to a higher standard of work."

English, No. 7.—"It is of no special benefit in English work except in connection with theme writing, where the teacher is able to see the actual time spent in writing and revising.

"I cannot discuss change of duty, as I have a vacant period and do not feel the strain of five consecutive periods.

"I may be wrong, but I let the pupils do as much work for themselves as possible, feeling that they need that responsibility. I do not do my work much differently than under the old system. I can't."

MOTIVATING ENGLISH COMPOSITION

BESSIE ESTELLE HARVEY
UNIONVILLE, CONNECTICUT

I believe in the school paper.

I believe in the school paper for the small high school.

I believe in the school paper edited by the English teacher and a board of student assistants appointed by that teacher.

I believe in the school paper as a vital outgrowth from the English class and a paramount means of motivating composition.

Concerning the school journal as a socializing force much has been said and written, but its vast importance as a means of stimulating and improving the work of English composition classes is sometimes overlooked. Even where its value is recognized, too frequently the story of a "defunct" paper is told in some such sad phrases as these:

Our paper was given up because of financial difficulties.

We used to have a paper, but it took too much extra time from the pupils' studies.

No one was enough interested in our paper to keep it going.

Our high school is too small to support a paper.

My own experience with high-school journalism began indirectly. The school of a hundred where I was teaching had no paper, but it had a literary society, more or less flourishing according to the energy of the teacher in charge. Appearance on the program was not compulsory, and so the teacher was at the mercy of the good will and interest of the pupils. They were usually willing to pass on to the literary society work done for English classes, but they strongly objected to preparing new material.

It was early spring when the writer's turn arrived, and most of the stock devices had been exhausted. For three weeks after my advent as stage manager, the backbone of the program consisted of the best specimens from a particularly good lot of short stories handed in as regular work by a bright Sophomore class. To vary the monotony the cream of prepared Freshman declamations was offered. Then came the grand inspiration.

One morning I opened the recitation in the Senior class by asking the members if they could and would keep a secret from fellow-students, faculty, and even the principal. In spite of spring fever they rose to the bait. Then I told them that instead of the regular numbers in literary society a week from Friday we would have a Senior paper. I had some "advance copy" ready to serve as a model. I read this to the class in order that all might catch the spirit of the production I had in my dreams. After promising English credit for the good things and no marks off for the bad ones, I turned them loose.

That very week they were in the throes of preparation for a bazaar which was planned as a means of making money for a trip to Washington. Here was a splendid basis for advertisements. I suggested this and other possibilities. As fast as thoughts came and were recorded they were brought to the desk for my approval. In some cases I changed and combined, in others little revision was necessary. By the end of the period we had all the "ads"—genuine and fictitious—we could use, as well as plenty of enthusiasm for "our paper."

This class had been studying prosody, and the course required a sonnet from each member. These students had chosen to write on Robert Burns, but in many cases inspiration seemed lacking. The next composition day I set them to work on that task, promising for the best result a place in the paper. They were allowed to substitute other material for the "The Poets' Armchair," one of our departments. Those who absolutely failed to win the muse were permitted to write up news articles based either upon real school happenings or upon things they were studying. Among the pieces of good "copy" that came in that day was a clever account of a supposed visit of Dr. Johnson to the school, as well as a striking feature story of the landing of General Julius Caesar upon British shores. I also got four very worthy sonnets and two other usable verses.

On the third day I suggested that we needed editorials, and here the class members wilted until they were directed to make free use of the magazine table, read a long article and summarize it in two or three paragraphs. It was an excellent composition

exercise, although but two or three of the themes were suitable for the paper.

On the fourth day we marshaled and read the material we had evolved, and filled the gaps with news articles, personals, and an editorial on the need for domestic science in the school. The latter piece of work came in a purely voluntary manner from a girl who had just discovered its editorial possibilities. I also added to the copy a rather attractive story which had been handed in the week before. Great care was taken that every member of the class be represented in the finished product. I got more live composition out of that class in a week than I had secured in the previous month!

The day of appearance came, and great was our relief to find that our journal seemed to meet with universal approval. Requests began to come that we make the paper a regular monthly feature of the literary society. I consented to continue the experiment as long as it met with general co-operation. When the principal came with congratulations and the suggestion that our paper be printed, I called my star Sophomore class to the rescue and let the desire to break into print enliven that class as well. Our revised paper was an improvement on the original, and a second group had become interested.

As to finances, a local printer who wished to advertise, gave us a special rate on the printing and we secured advance subscriptions at ten cents a copy from two-thirds of the school. A few weeks later our modest four-page sheet, the *Unionville Unicorn*, appeared with "The Spectator" as editors and the class of 1916 as assistants.

As the school desired another issue, we began the work at once and used the paper as a motive in composition for a solid month. The Sophomore class, then working on exposition and thus far hating it, rose to the occasion and furnished us with editorials, more than we could possibly use. The Seniors brought their contribution in the form of feature stories of various phases of their trip to Washington. The Freshmen excelled themselves in funny descriptions for "Want Ads" and items for the "Lost and Found" column, in addition to an amusing series of "strange adventure" stories. As this was to be called the Junior issue, I turned over to that class the reporting of new items relating to such interests as athletics,

German club, inter-school debate, Junior "prom," bird club, Shakespeare program, and the rest. On my table I kept a *Unicorn* box where contributions, signed or unsigned, could be dropped. No humor with a sting was acceptable, but all good, clean, genuine fun was encouraged.

The net material results of this effort were two issues of our little paper and enough reserve copy, barring news items, for two or three more. A far greater gain was a changed attitude toward composition on the part of many who held to the idea that they "never could write" and a greater effort from the others. One clever, but none too industrious, girl revised a story twice in order to have it accepted. Whenever a theme was handed in that had value for the paper, I marked "Return" under the grade. Those messages were both worked for and watched for. There were a great many, for I deliberately chose "copy" material for theme subjects or led the pupils to choose such material for themselves. These early numbers required much editing, but I feel certain that this part of the work will diminish in time, for it will come to be understood that the material that is nearest best as it stands will be given first place. However, this rule is not invariable; preference sometimes will be given to an article from a new contributor over a less-to-be-edited piece of work from an old stand-by. The ideal set is at least one item a year from every person in the school.

Before the close of school many pupils approached me on the subject of the paper. I consented to continue it on my own terms, at the same time reminding them that responsibility for success rested with them. Early in the autumn I purpose to appoint and post my board of editors, a literary and a news editor from each class. The literary editor must be one who is "good in composition" and in appreciation as well. The appointee may not be the very best, because I mean to give the post to the girl or boy who does fewest other things in the school and is still eligible. The news editors must be hustlers who will collect news and also look after circulation matters. One may be an athletic enthusiast, another a member of the German club or the bird club, a third a born humorist who can see and tell a joke, a fourth a good "mixer," who knows the business men and can keep an eye on what the towns-

people like. These news editors will be encouraged to a good-natured rivalry as to amount and style of copy. To the literary editors I shall turn over gradually the choice of the most usable material from the themes of their various classes. I may even let them try their hand at revising, in place of some original composition work. In a year they ought to know the trick well enough to be candidate material for editor-in-chief, in case we should decide that wider student control is wise. I mean to run this paper with very little extra work to the children, as I plan to assign my subjects with regard to their intrinsic interest to our public—the pupils and their parents.

The question of finance is a grave one. Advertisements from local dealers are not feasible, as the town is near a big city where most of our readers trade. We were able to sell copies of our last issue to most of the "substantial citizens" of the place, and we feel that our main hope lies in getting out a paper so good—so vitally recording the school life—that the townspeople as well as the pupils will feel that they can't afford to miss a number. These, to sum up, are the principles at the base of success in such an enterprise:

1. The *spirit* of the paper shall be dignified, humorous, kindly.

2. The *material* of the paper shall be vital in its relation to all phases of school life, vivid in its treatment, varied in its scope and character.

3. The *contributors* to the paper shall be the whole student body.

4. The main *work* of the paper shall be done in class as a part of the composition work by a careful assignment of subjects which will make good copy, and a study of editorials, news items, and short stories in connection with the use of periodicals.

5. The management of the paper shall be in the hands of the English teacher and her carefully selected board of assistants.

6. The finances of the paper—rest in the lap of the gods!

Over the grave of every defunct high-school journal I would fain write "Lost Opportunity." If this paper serves as a Gabriel's trump to arouse any such sleepers, I shall be glad. I confess that my object in presenting this matter is that teachers in small high schools may be led to take up the question of the school paper and carry the project through.

EDUCATIONAL NEWS AND EDITORIAL COMMENT

The Minneapolis Educational Monographs

A promising innovation has been made by Superintendent Frank E. Spaulding in publishing a series of monographs, each treating some phase of the Minneapolis public schools, in place of the conventional annual or biennial reports. The scope of this undertaking is shown by the announcement of the following twenty monographs to which others are to be added. The first two of these are already published; the others will appear during the course of the present school year.

1. *A Million a Year.* (A five-year building program including a discussion of policies concerning junior high schools, extending the normal capacity of the school plant, and the establishment of standard distances for the location of school buildings.)
2. *Financing the Minneapolis Schools.* (Sources of revenue; expenditures.)
3. *Where Are the Children?* (Describes a continuous census taken and kept by the schools; also means of securing regular attendance.)
4. *Keeping the Children Well.* (Medical inspection; school nurses; the open-air school; open-air rooms.)
5. *In a Major Key.* (Music in the Minneapolis schools.)
6. *Pencil and Brush.* (Art in the Minneapolis schools.)
7. *Wider Use of the School Plant.*
8. *Operation of the School Plant.*
9. *Out of the Beaten Track.* (School publications; entertainments; festivals; various activities not in the regular curriculum.)
10. *Teaching in Minneapolis.* (Conditions of appointment, retention and advancement; salaries; expenses; advantages.)
11. *Making Children Strong.* (Athletics, plays and games, gymnasium work.)
12. *Housing the Children.* (School buildings, old and new; different types; additions; remodeling and repairing; grounds, equipment.)
13. *Becoming Professional.* (Professional organizations of teachers; work at the University of Minnesota; "extension" work; research in the schools; summer school study.)
14. *Why Summer Schools?*
15. *Children Who Are Different.* (Defectives, subnormals, and backward pupils; provisions made for them.)
16. *Something about Minneapolis Kindergartens.*

17. *The Critical Period.* (Junior high schools.)
18. *The Parting of the Ways.* (Senior high schools.)
19. *After the Day's Work.* (Minneapolis evening schools.)
20. *Possibility and Opportunity.* (Vocational guidance, placement, and supervision.)

Bulletin No. 1 presents a detailed program for the expenditure of $5,600,000 for the enlargement and equipment of school property during a period of five years. This program is the result of a year's study by the Board of Education and its executive officers, during the course of which the Board has invited and received the suggestions and cooperation of parents' and teachers' associations throughout the city. Two public hearings on the subject were given and each association was asked to submit in writing a statement of the needs of its particular district. The publication of the tentative program is expected to be followed by further suggestions and criticisms which the Board invites. The program, with such modifications as may be expected to follow its further discussion, will be made the basis of such action by the legislature as will be necessary to provide the funds for putting it into effect. This method of providing a comprehensive plan for the necessary enlargement of school equipment marks an important advance upon the piecemeal method usually employed with the accompanying log-rolling and sectional strife.

Of no less interest is the second bulletin of the series on *Financing the Minneapolis Schools*, which deals with the sources of revenue and expenditures, and contains a comparison of the principal items of expenditure with corresponding items in twenty-four other cities.

The discussion of fundamental educational policies which these bulletins contain make them of interest and value to all who are concerned with public-school administration. These monographs, printed on good paper and illustrated with charts, diagrams, and photographs, may be secured at the price of twenty-five cents each for single copies.

Boys' and Girls' Clubs in Agriculture and Home Economics in Massachusetts

Boys' and girls' clubs have come to serve an important function for the school in motivating the work of the classroom by connecting it closely with community activities, and for the community by setting new standards of efficiency in agriculture and housekeeping. We are accustomed to think of these clubs as existing only in the agricultural

states of the South and West. That these clubs are performing a similar function in the older states of the East, not usually regarded as agricultural, is evidenced by the report of the State Board of Agriculture of Massachusetts.

In 1908 the Potato Club was organized in a single county with about 600 members. In 1915 there were 315 towns co-operating in the movement represented by the various clubs which had become state-wide in its scope. There are now nine other enterprises in successful co-operation: Home and School Garden Club, Corn Club, Market Garden Club, Poultry Club, Hay Club, Pig Club, Home Economics Club, Canning and Marketing Club, Backyard Garden Club. An idea of the extent of these clubs may be secured from the fact that the Home and School Garden Club has a total enrolment of over 50,000. In the other clubs the membership is smaller because of their more highly specialized character.

Village improvement clubs, women's clubs, and similar local organizations have been helpful factors in promoting and sustaining interest in the work of the clubs. Private individuals, business firms, and banks have supplied funds for premiums and for paying local supervisors and helpers. The entire work is directed by the extension service of the Massachusetts Agricultural College. In 1915 cash prizes amounting to about $1,500 were paid to 82 winners in the different contests, in amounts varying from one dollar to over three hundred dollars.

Progress

Progress is the title of a course of study issued by Mr. M. G. Clark, superintendent of the Sioux City public schools, and printed by the high-school print-shop. The author makes the progress of the race, or history, the basis of all study in the grades below the high school. "If history," he says in his preface, "is correctly taught, the child's power of analysis and of problem solution as well as his interest in human progress will keep pace with the growing complexity of the historical problem. The ability to think, to analyze, and to solve problems should always be at the forefront in the *teacher's motive*. History is essentially a 'why study.' It is the object of this course to lead the child into the habit of problem analysis and solution; into a knowledge and appreciation of his historical inheritance; and to a fundamental understanding of American institutions and American ideals."

The large motives set forth may lead those who have not seen the work to feel that Mr. Clark is riding a hobby. He is; but not through the air. Every step is so carefully planned that experienced and inexperienced teachers alike may keep the same attitude toward the subject and cover approximately the same field. Evidently the superintendent intends to guard against the waste of unlearning and by so doing to sustain interest in school at least through the grades. A definite problem is set for each grade and when once solved is not taken up again. If the plan is carried out, the children who come to a new grade eager for new and more difficult work will not be disappointed.

The definite purpose and fresh subject-matter will certainly react upon the instructorial staff. How many teachers find their interest in a new class slumping because it is so hard to come at what has been accomplished in the previous grade. What a spur it will be to be held responsible for a definite phase. Mr. Clark has a large view of vocational guidance. He aims first of all to make it the business of the public schools to guide the pupils into intelligent American citizenship.

The Home as a Cooking Laboratory

The domestic science department of the J. Sterling Morton High School, Cicero, Illinois, in an effort to make the work in cooking more practical and of greater value to the community, is giving school credit for home work. The plan was instituted with the beginning of the fall semester and is now in merely the experimental stages of operation. As yet, no definite home cooking assignments have been given, the grades being made from reports of daily kitchen work. These reports are filled in on blanks, which are furnished by the department, signed by the mothers of the girls, and returned to the teacher at the beginning of each week.

Under the old arrangement, the cooking classes spent eight regular periods each week in classroom and laboratory work. Now six periods are given to the work in school, and the girls have a chance to make the same number of credits which were given under the old plan, the home work counting about one-fourth of the month's grade.

The teacher of cooking spends, on an average, one and one-half days each week in visiting the homes of the girls. She endeavors to see each mother at least three times during the semester. In the first interview the plan was carefully explained and the earnest co-operation of the mothers solicited. In the later calls the teacher carries with her the

weekly reports and, in going over these with the mothers, gains an opportunity to make any suggestions which may seem wise to her.

Thus far the results of this scheme are highly gratifying. The girls are extremely interested and the reports indicate weekly improvement in their home work. At least nine-tenths of the mothers are enthusiastic in their co-operation. The others are mildly interested, and in only one case has there been any opposition to the plan.

Training in the Artistic Qualities of the Mother-Tongue

When Professor P. Baker of Harvard was a youth under the veteran A. S. Hill in rhetoric, he was chagrined because Hill's assistant unmercifully blue-penciled his boyish compositions. Baker said to Hill, "Why is it I can't write? I try faithfully. What shall I do?" Hill looked at him quizzically a moment, put his hand on the lad's shoulder, and replied, "Well, Baker, if I were you, I should go out and live awhile.

Hill knew that education, especially in the art of the mother-tongue, is a *becoming*. He knew that fluency, flexibility, yes, even correct mechanics in writing, are matters which require, not definite periods of work like sawing cords of wood, or shoveling tons of coal; are matters which require, not primarily daily themes in high school and college under the inspiration of red-inked hieroglyphics. Fluency and flexibility of expression require life, participation in affairs of feeling and thought and action. They require maturity of experience. A teacher of literature who possessed visions of the establishment of literary tastes equivalent to Hill's vision of the acquirement of style would tell our young people "go out and live awhile."

Education in the humanities is not a realization, not a definite equipment to be obtained and measured in specific units at the end of a stated period—at the end of the eighth grade, the legal compulsory school age, or the close of high school or college. On the contrary, education, especially in the artistic qualities of the mother-tongue as manifested in literature, is a becoming, requiring gradual maturing of the student's powers through a wider and wider contact with life. Education in the artistic qualities of the mother-tongue requires contact with life more than contact with masterpieces of literature itself. We must learn that language is the instrument of the experience of men's souls, that style is the reflex of matured human convictions; that literature is the record of the philosophy of the world's greatest dreamers. English teachers have been thinking of their work and allowing others to criticize

their work from a totally incompetent view of the philosophy of language itself, and of the acquirement of skill in language. R. L. L.

HIGH-SCHOOL SECTION OF THE ILLINOIS STATE TEACHERS' ASSOCIATION—PROGRAM

THE ADMINISTRATION OF EDUCATIONAL GUIDANCE

Professor Charles Hughes Johnston, Urbana, "The Administration of Educational Guidance."

Principal I. M. Allen, Springfield, "Personal and Moral Guidance, Including the Organization and Direction of School Activities."

Principal H. F. Buck, Chicago, "Guidance in so Far as It Refers to Choice of Careers."

Principal R. G. Beals, Taylorville, "A Plan for Instructing High-School Students as to the Nature of the Vocations Open to Them."

Principal E. V. Tubbs, Centralia, "The Problem of Co-operation of Teachers and Parents in the Matter of Educational and Vocational Guidance, Moral and Personal."

Principal T. M. Deam, Decatur, "The Card-Catalogue System and Other Methods of Recording Individual Traits and Suggestions as to How to Administer These Systems of Recording."

Principal W. Wallis, Bloomington, "Economic Methods of Giving Advice Regarding the Election of Studies, with a Suggestion as to When and How This Advice Is to Be Given."

Principal G. J. Koons, Murphysboro, "The Problem of 'Follow-up.' An Account of the Boston System and an Evaluation of the Knowledge of the After-Vocational Careers of High-School Graduates."

VOCATIONAL GUIDANCE

A very important element in effective vocational guidance is the intelligent co-operation of the community and particularly of the parents of children of the upper elementary and high-school grades. Superintendent William A. Wheatley of Middletown, Connecticut, has prepared a basis for such co-operation in his city in the following letter sent to the parents of the pupils of the sixth, seventh, and eighth grades. This may prove suggestive to others who are interested in the problem of making vocational guidance effective.

To Parents of Sixth-, Seventh-, and Eighth-Grade Pupils:

Since boys and girls in the last three grades are quite likely to become discontented with school routine, to want to spend considerable money, and to think of going to work, we should like to call your attention to some ways in which the home and the school working together may help these young people.

First of all, it has been found that when pupils in these grades become interested in a high-school education or in considering seriously what life-calling they would prefer to follow, they naturally take new interest in their studies and are more contented to remain in school. So, perhaps the first place where the school can help is in conveying to you some idea of the training our high school is giving the 700 young people enrolled as students this year. Accordingly, we are sending you herewith an outline of the five courses of study we offer, together with explanations of what higher institution or what life-work each course prepares for.

While we can never place a definite value on the immense personal and social advantages to be derived from a higher education, we have some facts to offer concerning the worth in money of a high-school education to almost any boy. Doubtless these figures would prove about equally true also for the girl who leaves the home circle to earn her living. A few years ago a special investigator of the Massachusetts State Board of Education studied a large number of cases and found that on an average the boys leaving grammar school at fourteen began at $4 a week and at the end of their twenty-fifth year were receiving $12.75 a week, while those graduating from the high school four years later began at $10 a week and at twenty-five were receiving $31 a week. The total earnings of the grammar-school boy in the twelve years were $5,722.50, while those of the average high-school boy in the eight years were $7,377.50.

Many teachers, together with men and women of affairs, believe that the very best way to keep our boys and girls interested in school is to lead them to consider seriously the choice of their life-work and then, what is closely related, to appreciate that success in this calling requires a good general education and a thorough preparation beforehand for the probable demands of this career. As our own experience has proved the value of this course, we would urge you strongly to lead your son or daughter as early as possible to make at least a beginning of deciding what life-work appears most attractive. Or, if the choice of a particular calling seems impossible, then have your child attempt to select the general field of work that appears most desirable. For both boys and girls, the choice may lie in salesmanship, secretarial, library, or social work, civil service, the learned professions and allied vocations, etc.; or for boys alone, in agriculture, the building or machine trades, railroading, the engineering professions, etc.; or for girls alone, in nursing, dressmaking, millinery, etc. We might suggest here another important fact, namely, that young people, as a rule, when unassisted and unadvised, are liable to aim lower, to select an inferior calling, and to plan a shorter period of education and training than they would do if parents and teachers encourage them to have more confidence in their native ability and spur them on to try for the higher stakes in life.

It is well to take children where they can see in operation several callings for which they have some liking, and where they can ask questions of a number of successful persons engaged in these vocations. The public librarian and

their teachers can also help them to find interesting articles, magazines, and books which deal with their favorite life-careers. In every way that offers, our young people should become as well acquainted as possible with the vocations they especially like. We would suggest that they investigate these occupations in at least the following particulars: the natural qualifications, the general education, and the special training demanded for success in these, the healthfulness, the prospects of steady employment, advancement, and remuneration, the sort of people that are found in these callings, etc. While pupils who choose their vocation early in life may later on change their minds and make another selection, still their first choosing does good rather than harm—it keeps them in school and gives them a zest for studies preparatory to their supposed life-work. Besides, the second choice is more likely to be a wise one because of the considerable investigation of vocations involved in the first choosing.

As we are able, we shall give our pupils in the three upper grades what vocational enlightenment we can. In the first two years of the high school we offer a well-defined course for the boys and one for the girls treating some seventy or more life-callings. On your part, will you kindly co-operate with us in interesting your child in some one of our high-school courses and in considering seriously what life-work he or she would prefer to follow? Also, we wish you would feel perfectly free to come at any time to consult your child's teacher, principal or superintendent upon any matter relating to your child's welfare at school, or his preparation for successful living afterward.

Cordially yours,

WILLIAM A. WHEATLEY
Superintendent of Schools

BOOK REVIEWS

Ancient Times. A History of the Early World. By JAMES HENRY BREASTED. New York: Ginn & Co., 1916. Pp. 2+742.

Medieval and Modern Times. By JAMES HARVEY ROBINSON. New York: Ginn & Co., 1916. Pp. xii+777.

The authors and publishers of the two foregoing textbooks have done high-school students and teachers of European history a great service, the former by writing accounts which are simple, plain, direct, and interesting, and the latter by publishing books full of a multitude of aids which are rather expensive and too often omitted from similar works. To produce *better* rather than *more* books in an already well-worked field seems to have been the controlling aim of both authors and publishers.

In examining textbooks in history with a view to determining their adaptability to high-school students and service to the high-school teachers, one looks for what might be called general merits and pedagogic merits. In the former are included the general organization of the field of history included in the text, the organization of particular phases of the general field, the nature and number of the topics selected, proportions given to industrial, social, religious, and educational life as well as to war, law, government, and politics, the character and number of maps and illustrations, and the style of treatment. The pedagogic merits include character, number, classification, and location of reference books, notebook topics as well as topics for general and special reports, suggestive questions, marginal references and notes, chapter and topic summaries, and a pronouncing vocabulary. Granting that two books are of equal merit in the matter of historical scholarship, the one that scored the higher on the items under general pedagogical merits would be the better one. While it would be interesting and at the same time valuable to examine in some detail the texts under discussion according to the foregoing criteria, space will not permit more than a brief consideration of them in accordance with such a scheme.

In the matters of general and special organization the two books follow the same plan, namely, that of presenting co-ordinate chapters with a small list of topics in each and omitting any division of the field into seven or eight big topics, as some other texts do. To the writer's thinking, this is a merit, for it makes the books easy to adapt to the teacher's own organization of the field, if she has one.

Breasted's *Ancient Times* is literally full of excellent illustrations. The notes accompanying each make possible the comprehension of its historical significance by the student, thus rendering the illustrations a distinct aid to

the text, and at the same time interesting to the student. Both books contain many good, clear, serviceable maps. Each also has a style that is plain, simple, direct, and interesting. In the matter of the attention given to the various phases of life, one feels in reading the books that *events*, *institutions*, and *conditions* have all been well handled and no one at the expense of the others.

In what has been termed pedagogic merits both books are rather unique, each following the same general plan of locating the references at the end of the book and classifying them by chapters, of giving in the margin the paragraph topic, of offering a list of questions based on each section at the end of each chapter, of omitting chapter and topic summaries, of including a pronouncing vocabulary in the index, and of offering no notebook topics and topics for general and special reports.

The real value of some of the foregoing features as one finds them in the two books is sometimes questionable. Too many of the references are those in which neither student nor teacher will have any interest, the marginal references will deprive the student of the opportunity to apply some things his English teacher has taught him, and the questions at the end of each chapter will be likely to represent a considerable amount of wasted energy since such little use is ever made of them. *Ancient Times* has an excellent pronouncing vocabulary. This, taken in connection with the many valuable illustrations accompanied by careful and full explanations, the copious supply of colored maps, the scholarly treatment, and the interesting style, makes it a textbook of a very high type for schools still desiring to follow the course of study proposed by the Committee of Seven, some eighty years ago, which, it should be said, an enormous majority are yet following.

R. M. TRYON

UNIVERSITY OF CHICAGO

Human Physiology, A Text-Book for High Schools and Colleges. By PERCY G. STILES, Assistant Professor of Physiology in Harvard University and Instructor in Physiology and Personal Hygiene in the Massachusetts Institute of Technology, Boston. Philadelphia and London: W. B. Saunders Co., 1916. 12mo, pp. 405. Cloth, $1.50, net.

In the introduction to this book the author stresses his opinion that the difficulties of pupils in the study of physiology are due more to a lack of the conceptions involved in physics and chemistry than to an ignorance of the facts of anatomy. He says:

> What are the matters which must be impressed at any cost? First of all, the conservation of energy and its convertibility from one form to another. Second, the closely related fact of the latency of energy in those compounds which we call fuels; the recognition of food as a biologic fuel; the general significance of oxidation and the release of potential energy; the realization that the respiratory process is a particular

case of oxidation and that its value is in the setting free of energy that becomes manifest as heat and mechanical work. Finally, the conception that the development and application of energy are determined by stimuli brought to bear upon organisms from the world without.

These statements furnish the clue to the treatment of the chapter subjects which are the usual ones of textbook physiologies. There are defects in the book it is true. They are defects which have met every effort of a similar nature. To make a satisfactory book which shall serve for both high school and college; to give a scientific presentation of a subject when a knowledge of the sciences upon which it is based cannot be assumed but must be developed; to teach a science by means of a book to students who are supposed to have no laboratory experiments or laboratory material is an all but impossible task. No one, presumably, would admit this more readily than the author.

The book is packed with information. The treatment alternates between simple exposition and technical description. The text has evidently arisen as a result of classroom teaching and it still preserves the lecture style.

STELLA B. VINCENT

UNIVERSITY OF CHICAGO

The Essentials of Teaching. By T. J. BURNETT, M.A. London: Longmans, Green, & Co. Pp. xv+250. 3*s*. 6*d*. net.

This work has been written for amateurs and beginners in the art of teaching. It is the amplification of a series of lectures delivered during the winter of 1914–15 to the non-professional teachers of the *practical* subjects in the continuation classes conducted by the Edinburgh, Scotland, School Board. Edinburgh has solved the problem of securing teachers for industrial subjects by taking practical men from the trades and giving them professional training while in service.

Some of the topics treated are as follows: "Principles Underlying the Teacher's Work," "The Aim of Education," "Teaching and Psychology," "Teaching and Logic," "Methods of Teaching," "The Formal Steps," "Classroom Management," "Teaching and Examination." There is little in the work that is modern; e.g., there is little, if anything, on individual differences, supervised study, standard tests, etc. However, people who have no comprehension of the problems of teaching will doubtless derive some profit from the study of this little book. The reviewer thinks that a more concrete approach to these problems would be far superior to the abstract treatment accorded them in this book, especially since the persons for whom the work is intended are not accustomed to deal with abstract principles.

The chapter on "Teaching and Logic" seems to be particularly ineffective and inappropriate. A rather amusing opinion is expressed on p. 54 that the neglect of emotion in the Herbartian doctrines may "account for the strange moral perversion that characterizes her [Germany's] attitude toward life and conduct."

Again, some of us have read *Nicholas Nickleby* with the idea that Dickens was satirizing the type of education depicted there. This was an erroneous belief, however, if Mr. Burnett is correct; for on pp. 95–97 we find a quotation from *Nicholas Nickleby*, accompanied by this estimate: "His [Squeers's] practice as an educator was founded, unconsciously, on sound enough theory." One might hazard the opinion that a happier illustration could readily have been selected.

The reviewer considers the chapter on "Classroom Management" as the most sane and helpful in the book. The author very properly emphasizes the value of thorough preparation for each lesson, of judicious seating of pupils and economical passing of supplies, of keeping pupils busy, of reserved yet friendly bearing on the teacher's part, etc.

J. F. GONNELLY

UNIVERSITY OF CHICAGO

Essays in Experimental Logic. By JOHN DEWEY. Chicago: The University of Chicago Press. Crown 8vo. $1.75.

It is a commonplace that within little more than a generation the adoption of the evolutionary standpoint has transformed the entire field of intellectual endeavor. Science has had to be rewritten, the arts have not been left untouched, and even theology is showing the influence of the hypothesis which, as at present known, is the contribution of our age to the history of thought. There is, however, one exception to the rule, namely, the subject of logic as taught in by far the greater number of colleges and universities the world over. Logic is the Rip Van Winkle of the contemporary intellectual world.

There are signs that in the United States at least this anomalous situation is not to last much longer. Courses in logic will either be remodeled or cease to constitute a vital subject in the college curriculum. The publication of the book which may be regarded as the voice of evolution in the temple of logic is therefore most timely. Whatever one may be inclined to conclude regarding the conception of thinking for which Professor Dewey is spokesman, none but those who are satisfied to offer a perfunctory course in logic can afford to neglect this series of essays. Nor is the book significant only for teachers of logic. It is, on the contrary, of first importance to all who are themselves investigators or are desirous of gaining an insight into the nature and meaning of investigation.

If the limits of space imposed make it permissible to murder a living presentation by dissection, the gist of the volume may be put briefly thus: There is no thinking *überhaupt*, and no *pure* logic. Thinking always originates in particular questions and ends with specific answers; it is inseparable from concrete problematic data, and does not aim to satisfy an abstract standard, but to solve a particular problem. In other words, there is no such thing as

naked thinking; there are numerous thinking processes, each dressed in its own garb of experienced data.

And so of logic, or reflection upon thinking. As there is no thinking at large or in general, so there is no logic at large or in general. There are no such things as forms and principles of thought which hold irrespective of any difference in the objects thought about. Logic, too, must be satisfied to hobble around among concrete problems, or, at all events, to make only such flights as attachment to the concrete will allow. A bird's-eye-view, yes; but a bird's-eye-view of definite empirical problems and specific empirical solutions. "While eliminating the particular material of particular practical and scientific pursuits, (1) it may strive to hit upon the common denominator in the various solutions which are antecedent or primary to thought and which evoke it; (2) it may attempt to show how typical features in the specific antecedents of thought call out divers typical modes of thought-reaction; (3) it may attempt to state the nature of the specific consequences in which thought fulfils its career."

Not axiomatic laws of thought, then, and an infallible, undefiled thought-device, constitute for Professor Dewey the subject-matter of logic, but rather "the typical investigatory and verificatory procedures of the various sciences in which thought actually brings to successful fulfilment its dealing with various types of problems," and the changes thus introduced into the world of experience itself. For so intimate is the relation between thinking and experience that not only is every thought-process "a specific procedure relative to a specific antecedent occasion and to a subsequent specific fulfilment," but thinking modifies the experience in which the thinking is done. Reflective inquiry does not end in a mere "spectator-like apprehension of terms and propositions." It is the thesis of the essays, says Professor Dewey, "that thinking is instrumental to a control of the environment, a control effected through acts which would not be undertaken without the prior resolution of a complex situation into assured elements and an accompanying projection of possibilities—without, that is to say, thinking." Through experiment thinking brings about "an *actual* alteration of a physically antecedent situation in those details or respects which called for thought to do away with some evil."

At the conclusion of so brief a review of so commanding a book it is difficult to say which would be the greater impertinence, criticism or compliment. Professor Dewey has had a considerable share of both, but what he deserves just now is careful reading.

In the present volume chaps. ii–v, inclusive, represent essays previously published in the co-operative venture entitled, *Studies in Logical Theory*, while the remaining chapters, excepting the first, are in part reprinted from various philosophical journals and in part rewritten. For this reason the reader may find it advisable to read the first or introductory chapter last.

M. C. Otto

University of Wisconsin

Food and Health. By H. KINNE and A. M. COOLEY. New York: Macmillan, 1916. Pp. 312. $1.10.

Clothing and Health. By H. KINNE and A. M. COOLEY. New York: Macmillan, 1916. Pp. 302. $0.65.

Clothing and Health, designed for use in elementary schools, seems to be of the "supplementary reading type." Where there is no opportunity for regular instruction and laboratory work in foods, and the teacher is not trained along that line, this book might fit nicely. But where any amount of time could be given to foods-instruction, this seems to be too popularly written—too much story—for practical use.

The general plan of lessons, following the various meal-plans, would seem better adapted to a reading circle or girls' club, rather than to elementary school instruction.

The same criticism could be made of the companion volume, *Clothing and Health.*

The book is too limited in sphere of usefulness to make a very valuable contribution to the literature on home economics.

CATHERINE C. CREAMER

STATE UNIVERSITY OF IOWA

Daniel Defoe—How to Know Him. By WILLIAM P. TRENT. Indianapolis: Bobbs-Merrill Co., 1916. Pp. 329. $1.25 net.

In this day of hurried and rather desultory reading on the part of the average reader, it is with no small degree of complacency that he answers the question, "Who wrote *Robinson Crusoe?*" "Why, Daniel Defoe." The impression of the story itself was gained somewhere in the dim past of childhood. Comparatively few readers know that Daniel Defoe, son of a butcher, and successively stocking merchant, brick manufacturer, soldier, government spy, journalist, and politician, was one of the most representative figures of an age of reaction against Puritan stringency. There is perhaps no better representative of right-thinking men and women, attempting to uphold moral and political standards against the demoralizing influence of the court of Charles II, the succeeding "bloodless revolution," and the religious unrest manifest while the union of England with Scotland was forming.

Professor Trent has made of his discussion of the life and letters of Daniel Defoe a work that is almost as entertaining to the adult mind as was *Robinson Crusoe* to his childish thought. Through his happy choice of selections from the less known works as well as from *Robinson Crusoe*, Professor Trent revivifies the author and evaluates him in the world of letters.

The reader is continually struck with the range of interest exhibited in the pamphlets. Defoe seems to be equally at home with sailors, educators, and statesmen. In this day of feminism the opinions expressed in the *Academy for Women* are entertaining.

I have often thought of it as one of the most barbarous customs in the world, considering us as a civilized and a Christian country, that we deny the advantages of learning to women. We reproach the sex every day with folly and impertinence, while I am confident, had they the advantages of education equal to us, they would be guilty of less than ourselves. The capacities of women are supposed to be greater, and their senses quicker than those of the men; and what they might be capable of being bred to, is plain from some instances of female wit, which this age is not without; which upbraids us with injustice, and looks as if we denied women the advantages of education, for fear they should vie with the men in their improvements.

After logically setting forth reasons why women should be educated, he sums up the plight of the uneducated in a few succinct sentences:

On the other hand, suppose her to be the very same woman, and rob her of the benefit of education, and it follows thus:

If her temper be good, want of education makes her soft and easy.

Her wit, for want of teaching, makes her impertinent and talkative.

Her knowledge, for want of judgment and experience, makes her fanciful and whimsical.

If her temper be bad, want of breeding makes her worse, and she grows haughty, insolent, and loud.

If she be passionate, want of manners makes her termagent, and a scold, which is much at one with a lunatic.

If she be proud, want of discretion (which still is breeding) makes her conceited, fantastic, and ridiculous.

And from these she degenerates to be turbulent, clamorous, noisy, nasty, and the Devil.

The extracts from *Robinson Crusoe* preserve the impression conveyed by the selections from less known works. The reader closes the book with the feeling of having known the man and of understanding the time of which he was a part. The edition is recommended particularly to schools where reference facilities are limited.

ELLEN M. GEYER

UNIVERSITY OF CHICAGO

A Textbook of Botany for Colleges. By WILLIAM F. GANONG, Professor of Botany in Smith College. New York: Macmillan, 1916. 8vo, pp. xi+401, with 274 illustrations. $2.00.

There are two distinct points of view regarding the purpose of the general course in botany for college students. These two purposes are conspicuously set forth in no other way so well as in the textbooks prepared for use in general college classes. The course outlined in the book which is the subject of this review is specifically designed as "an introductory course in botany," as "a part of a general education, and not as a preparation for a professional botanical career." The supreme importance of this distinction appeals to persons who have a perspective view of college education. Such persons have noted the tendency, all too common, to organize the beginning courses in college sciences upon the assumption, and perhaps the desire, that as many students as possible

should be led to take technical courses in each of the sciences following their first college course. As a result of this technical point of view in each of the sciences, we often find college graduates who have had a series of technical courses in one or two sciences, and no courses for general education in these one or two sciences, or in the other sciences. Such a student is left with no college education in the other sciences, and with a technical, not a general, education in the one or two sciences in which he has worked.

Professor Ganong has not felt responsible for telling all known botanical facts about each topic discussed, since he has attempted rather to present major truths with enough morphological details to give a clear setting to the major truth. For example, on p. 34, there is a diagram on the leaf mechanism by means of which photosynthesis is carried on. The reviewer has never observed a leaf whose structures are even nearly like those shown, but the illustration is a diagram, not a representative drawing, and is intended to block out essential facts, not to lose the student in the details of the accuracies of detail of internal leaf anatomy. It is not impossible, sometimes, to tell more truth by omitting some of the quite true but confusing details, and this method as used in the book under review is a case in point.

The topics which are treated in the book are much the same as those appearing in other college texts. Structure and function and economic and industrial significance are carried closely together, however.

An illustration of the method of presentation and the nature of the content and material may be shown by citing the treatment of the topic "The Autumnal and Other Coloration of Leaves." First, there is a discussion of colors other than green as they appear in plants in general. The function of the colors, such as erythrophyll, xanthophyll, carotin, etc., are discussed; also the colors which are apparently induced by the presence on plants of fungi or insects such as occur in the rust of wheat, or the destruction of chlorophyll through insect activities. The nature of the occurrence of autumnal coloration, the types of colorations, and the suggested explanations of these striking phenomena are discussed. Following this topic is a discussion of the economics and treatment in cultivation of leaves; then comes a description of the uses of the photosynthetic food. When we have considered that the whole topic of leaves is first presented morphologically by Professor Ganong, then variations in leaf-form such as appear in bulbs, buds, the leaves of parasitic plants, tendrils, spines, sensitive leaves, etc., then the treatment of plants whose leaves do not have chlorophyll, it is evident that Professor Ganong has given an organization which is very different from the ordinary one in dealing with the botanical matters that pertain to leaves and their functions.

In general, throughout the book it may be stated that morphological ideas are developed before the functions are discussed, these functions being made possible because of morphological structures. Also, the rather striking phenomena relating to functions are usually presented before a detailed discussion of the physiological basis upon which the phenomena rest. This method is doubtless followed in order to elicit the best possible interest from a student.

The book is an excellent contribution to our rapidly growing list of available texts for college botany and is the outcome of years of successful experience in teaching botany in a college whose general courses in that science have become well known because of their effectiveness and attractiveness.

O. W. CALDWELL

UNIVERSITY OF CHICAGO

British Verse for Boys. Edited by DANIEL THOMPSON. New York: Henry Holt & Co., 1916.

One must admit, in spite of his feeling that English literature has been anthologized to a swooning condition, that, in his *British Verse for Boys*, Daniel Thompson of the Lawrenceville School has given real service. His collection gathers representative poems from Chaucer to the present which have a definite appeal to the boy-mind. Necessarily the poems are easy to understand, often narrative, and often humorous. Thus many of the great poems of subtle thought, of intensity or delicacy of matured feeling, are omitted. The omission is wisely made, however, for the book is intended to arouse the young student's interest in verse. Once interested, he can easily be led to appreciate the difficult poems with an eager and trained mind. Mr. Thompson has successfully steered a middle course, for, while nearly every selection is within the comprehension of the youthful mind, each is of value in itself and in its power to overcome that common impression that poetry may be for many boys but is not for those of one's set. How lacking in pedantry and the beaten track of anthologies the collection is one may judge from the fact that Johnson's "If a Man Who Turnips Cries," Carey's "Sally in Our Alley," and Lear's "The Owl and the Pussy Cat," and Thackeray's "Little Billee," are included.

Knowing how completely Kipling, Stevenson, Masefield, and Noyes grip the boy-mind, one is sorry that each of these poets is not more widely represented. However, he realizes how valuable has been the decision to keep the volume in handy, attractive size—most anthologies make one shudder at first glance—and he knows that the value of any one book is largely in the way the teacher handles it. These four authors have a sufficient representation so that the pupil aided by the enthusiasm of the teacher and a well-stocked school library may easily be persuaded to read further into their work. The reviewer knows of no other satisfactory anthology covering the field of this volume, and he feels that it will be of service not only in schools for boys but for occasional use by the teacher in all intermediate institutions where poetry is taught as a living art. It is significant, too, of that desire—broached gingerly but with growing bravery—to teach literature suited to the mind of the pupil and especially to teach that modern material which will lead the pupil to realize that literature is a vital part of everyday life, to be discussed over the pancakes or to be read in the very last numbers of the magazines on the library table.

THEODORE B. HINCKLEY

UNIVERSITY HIGH SCHOOL

BOOK-NOTES

(Detailed discussions of some of the following books will appear later.)

CENTER, S. S. (Editor). *Boswell's Life of Samuel Johnson.* Abridged. New York: A. S. Barnes Co. Pp. 344.
The text includes a suggestive bibliography and interesting notes.

CHARTRES, W. W. *Teaching the Common Branches.* Boston: Houghton Mifflin Co., 1916. Pp. 355.

CLARK, M. G., Superintendent. *Progress. A Course of Study in History Arranged for the Grades of Sioux City Public Schools.* 1916–17. Sioux City, Iowa: High School Print Shop.

CUBBERLEY, E. P. *School Organization and Administration.* Yonkers-on-Hudson, N.Y.: World Book Co., 1916. Pp. 340.
A very carefully revised edition of the 1915 survey of Salt Lake City.

FERGUSON, J. A. *Farm Forestry.* New York: John Wiley & Sons Inc., 1916. Pp. 249. Cloth, $1.25 net.

FREDERICK, J. M. M., Superintendent. *Annual Report to the Board of Education, Cleveland, Ohio, January 24, 1916.* Pp. 172.

FREEMAN, W. H. *Applied Latin.* Milton, Pa.: Weidenhamer & Co., 1916. Pp. 344.

GAME, J. B. *Teaching High-School Latin.* Chicago: The University of Chicago Press, 1916. Pp. 124.

GANONG, F. W. *A Text Book of Botany for Colleges.* New York: Macmillan, 1916. Pp. 390. $2.00.

GRIFFITH, I. S. *Woodwork for Beginners.* Peoria, Ill.: Manual Arts Press, 1916. Pp. 76. $0.50.

JESSUP, W. A., and COFFMAN, L. D. *The Supervision of Arithmetic.* New York: Macmillan, 1916. Pp. 224. $1.10.

KINNE, H., and COOLEY, A. M. *Clothing and Health.* New York: Macmillan, 1916. Pp. 302. $0.65.

KINNE, H., and COOLEY, A. M. *Food and Health.* New York: Macmillan, 1916. Pp. 312. $1.10.

KUENZLI, F., and PANZER, H. *A Manual of Physical Training and Preparatory Military Instruction.* New York: Macmillan, 1916. Pp. 298. $1.25.

LANGLEY, ALFRED G. (Translator). *New Essays Concerning Human Understanding.* By LEIBNITZ. Chicago: Open Court Publishing Co., 1916. Pp. 861.

McDONALD, R. A. F. *Adjustment of School Organization to Various Population Groups.* New York. Teachers College, Columbia University, 1916. Pp. 145. $1.50.

The author gives the history of the provisions which have been made in the United States for care of the deaf, the blind, the feeble-minded, etc.

MEAD, C. D. *The Relation of Intelligence to Certain Mental and Physical Traits.* New York: Teachers College, Columbia University, 1916. Pp. 117. $1.50.

The author's experiments reveal facts in regard to physical characteristics of subnormal children, quite contrary to popular notions.

PAXON, SUSAN. *A Handbook for Latin Clubs.* Boston: D. C. Heath & Co., 1916. Pp. 148.

The book is unique. It offers helpful bibliography, literary selections for programs, and a few Latin songs.

REED, THOMAS H. *Form and Functions of American Government.* Yonkers-on-Hudson, N.Y.: World Book Co., 1916. Pp. 550. $1.35.

SMALLWOOD, M. E. *Study of Plants.* Chicago: Lake Technical School, 1916. Pp. 87.

SNEATH, H. E., HODGES, G., and KENNEDY, H. H. *King's High School Way Series: The Way to the Mountain.*

A collection of stories of considerable literary merit.

STRAYER, G. D. *Some Problems in City School Administration.* Yonkers-on-Hudson, N.Y.: World Book Co., 1916. Pp. 234.

The book gives the results of the four weeks' survey of the Butte schools. The introduction gives a detailed account of the preparations made for the proper co-operation and support of patrons and teachers. The test and scales used are carefully explained. The reader is impressed with the thoroughness and vigor with which the survey must have been conducted.

SWIGGERT, G. *Commercial Education.* A Report on the Commercial Education of the Second Pan-American Scientific Congress, December, 1915–January 1916. Department of Interior. Bureau of Education Bulletin, 1916, No. 25. Washington: Government Printing Office.

The Arden Shakespeare. New York: D. C. Heath & Co., 1916.

Interesting notes and ample glossary for high-school use. Sufficient discussion of sources and structure to make the texts also suitable for college.

THORNDIKE, E. B., MCCALL, W. A., and CHAPMAN, J. C. *Ventilation in Relation to Mental Work.* New York: Teachers College, Columbia University, 1916. Pp. 83. $1.00.

TRAHNE, M. R. *Completion-Test Language Scales.* New York: Teachers College, Columbia University, 1916. Pp. 118. $1.50.

WARD, C. C. *Manual for the Use of Pictures in the Teaching of English, Latin, and Greek.* Newton, Mass.: University Prints, 1916. Pp. 94. $0.25.

Very useful book for teachers whose library facilities are limited.

WORDY, C. *Measurements of Some Achievements in Arithmetic.* New York: Teachers College, Columbia University, 1916. Pp. 63. $1.00.